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 PDR Pollution and Waste Management Project

(PWMP-P510198)

Environmental and Social Management Framework (ESMF)

Volume I Main Report

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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
C1	Component 1
C2	Component 2
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
DNEI	Department of Natural Resources and Environmental Inspection
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 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 Fund
EPFO	Environment Protection Fund Office
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
PWMP	Laos Pollution and Waste Management Project
EXRI	EX Research Institute Ltd

FGD	Focused Group Discussion
FM	Financial Management
FPIC	Free Prior and Informed Consent
GCB	Green, Clean and Beautiful
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
Km	Kilometer
km^2	Square kilometre
LFND	Lao Front for National Development
LMP	Labour Management Procedures
LWU	Lao Women's Union
MAF	Ministry of Agriculture and Forestry
M&E	Monitoring and Evaluation
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
PAD	Project Appraisal Document
PAP	Project Affected People
PCU	Project Coordination Unit
PDO	Project Development Objective or Program Development Objective
PMU	Project Management Unit
PONRE	Provincial Offices of Natural Resource and Environment
PPE	Personal Protective Equipment
Pre-ESIA	Preliminary Environmental and Social Impact Assessment
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
SEA-MaP	Southeast Asia Regional Program on Combating Marine Plastics
SEP	Stakeholder Engagement Plan
SIA-SMP	Social Impact Assessment and Social Management Plan
SMP	Social Management Plan
SWM	Solid Waste Management
US$ or $	United States dollar
UXO	Unexploded Ordnance
VCOMS	Vientiane City Office for Management and Service
VTC	Vientiane Capital
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 increased generation of solid wastes. To address these challenges, 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 Office (EPFO) has been preparing a project, namely Pollution and Waste Management Project (PWMP), for possible financing by the World Bank (WB). The project will be implemented between 2025 and 2031 with a total budget cost of US $37.85 M, of which US $34.5 M is from the National IDA19 country allocation, and US $3.35 M is from the PROBLUE grant for plastic related activities. Project objectives and activities are provided in Section 1 and PAD.

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 the necessary ESF documents 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 2. This document is the ESMF of the PWMP which covers all project components.

E2. Project Objectives and Activities

The Development Objectives (PDO) of PWMP is to strengthen capacity for waste and pollution management, improve municipal solid waste services in targeted areas in Lao PDR, and provide immediate and effective response in case of an Eligible Crisis or Emergency.

The PWMP will also contribute to the SEA-MaP program development objective (PDO), which is to reduce plastics consumption, increase recycling, and minimize leakages to prevent land- and sea-based marine plastic pollution in Southeast Asia (see Section 1 of the main text).

Achievement of the PWMP PDO will be measured by the following indicators:

(a) Strengthen Laos' monitoring and enforcement of pollution control:
   i. Entities which are monitored for pollution compliance according to the new compliance monitoring system (Number).

(b) Improve waste management in targeted areas in Lao PDR:
   ii. Municipal solid waste collected that is recycled, composted, and/or safely treated in Vientiane Capital (Percentage).
   iii. People provided with access to improved municipal solid waste management services in Vientiane Capital (Number).
   iv. 'Plastics policies, guidelines, or standards established and aligned with the Regional Action Plan' (Number). This is the common indicator of the SOP.

The Project activities will be implemented through the following 3 components while more details are provided in Section 1 of the main text and PAD:

- ***Component 1 (C1): Advancing System for Waste and Pollution Management (US$7.87M of which US$4.52 M National IDA, and US$3.35 M PROBLUE grant).*** The objective of this component is to strengthen the GoL's policies and capacities for pollution control and waste management. Activities under Component 1 are organized as two subcomponents: Subcomponent 1.1 is focused on capacity support to the GoL for implementing environmental risk management for air and water pollution control in selected sectors, and subcomponent 1.2 is focused on supporting the GoL with new policies and regulations and capacity support for waste and plastic management.
- ***Component 2 (C2): Improving Municipal Solid Waste Services in Vientiane Capital (US$29.98 M national IDA).*** This component aims to enhance the institutional, operational, financial, and technical capacity of MPWT and VCOMS for policy development and implementation of solid and plastic waste management. Activities under Component 2 are organized as two subcomponents.
- ***Component 3 (C3). Contingency Emergency Response Component (*CERC).** This component will provide an immediate response to an Eligible Crisis or Emergency, as needed. In an Eligible Crisis or Emergency, the GoL can seek reallocation of project funds to support emergency response and recovery.

E3. Project Location

The project will invest in waste management facilities in Vientiane Capital. Landfill rehabilitation works will be undertaken at the KM32 landfill in Xaythany district, and waste transfer stations with treatment facilities will be developed in Xaysettha and Naxaythong districts. Activities for implementing village-scale waste recycling, will be done in Vientiane Capital, Vientiane Province and Oudomxay province. Strengthening of policy, legislation and regulation will primarily involve central government agencies in Vientiane Capital.

E4. Purpose and scope of the ESMF

This ESMF sets out the principles, rules, guidelines and procedures to assess and mitigate the E&S risks and impacts of the Project based on information currently available, including from the prefeasibility study and Preliminary Environment and Social Impact Assessment (Pre-ESIA) conducted for the Km 32 landfill investments under Component 2. The ESMF contains measures and frameworks to reduce and mitigate adverse E&S 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) relevant to the project. The social instruments (LMP, CHSP, COC, RFP and EGEF) to be applied to all components are provided in a standalone SIA-SMP. The ESMF will be applied to all Project components.

E5. 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 its capacity for waste and pollution management, improve municipal solid waste management in target areas 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 agencies of MONRE, MPWT, other sector agencies 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 risk management (ERM) measures such as EIA, IEE, 3R, NPAP, TA and capacity building of local authorities to be implemented under Component 1 will clearly support urban cleanliness, waste reduction, pollution control, and overall ERM capacity of GOL. 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 ERM tools and pollution control measures will also contribute to reduction of waste generation and of negative impacts and promote positive impacts and participation of the sector agencies and local authorities on ways to incorporate E&S consideration into the upstream planning and monitoring especially those related to potential cumulative impacts and uncertainty related to climate change.

The project is expected to directly benefit around 1 million inhabitants of Vientiane Capital through enhanced waste management and service delivery, while an additional 820,000 individuals in Oudomxay and Vientiane provinces will experience improvements in policies, regulations, legislation, monitoring, enforcement, and capacity building for plastic waste management. The broader impact extends to all of Lao PDR through the introduction of new legislation, improved policies, and enhanced waste management capacity. Direct benefits will be felt by the 264 waste pickers at the KM32 landfill, receiving improved working conditions, training, and opportunities for employment at planned waste management facilities. The project specifically targets women and vulnerable groups involved in informal waste networks, providing reskilling and training to integrate them into formal waste management systems and identify alternative livelihoods. The poor and near-poor, constituting approximately 10% of the population, are anticipated to experience significant positive impacts, including reduced waste burning, decreased pollution, and sanitary waste disposal. The government will consider the impact on poorer households while establishing new waste collection fees. Moreover, the

project is expected to yield regional and global benefits by reducing plastic waste entering oceans via the Mekong River and decreasing greenhouse gas releases to the atmosphere.

The PWMP investments proposed under Component 2 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 including capacity building of VCOMS and mitigation of potential negative impacts to waste pickers and other disadvantage or vulnerable groups.

The construction and operation of two new landfill cells proposed under the Km 32 landfill site 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 contamination 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 greenhouse gas (GHG) releases to the atmosphere.

Overall Negative Impacts/Risk and Proposed Mitigations

Overall, the Project is classified as a high-risk project while the Project components have differing risk profiles. The E&S risks and impacts of Component 1 are classified as low to moderate while those for Component 2 are classified as moderate to high. The high risks are mainly related to operation phase of activities at Km32 landfill taking into account (i) the existing waste at the Km32 Site and associated legacy risks and impacts; and (ii) limited institutional capacity and resources pertaining to waste facilities management.

There is historic and ongoing infiltration of polluted leachate from the legacy waste at the Km32 site which, if not mitigated, could potentially pose significant long-term risks to the surface water and regional groundwater resources which are used for irrigation and/or domestic consumption and may continue to raise concerns on health impacts from nearby residents. During stakeholder consultations carried out during the project preparation, concerns were raised by nearby villagers on impacts to rice productivity and impact on human skin (rash), air pollution and malodor from landfill burning, operation, and occasional landfill fire affect nearby villages. The project activities include support for preparation of an action

plan and budget for managing legacy environmental and social issues so that the historical pollution at the site does not pose a significant risk to health and safety of workers and communities. 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 are expected to be at acceptable level. The project has also included TA support for Detailed Design and for strengthening ES capacity of MPWT to manage waste facility including at Km32 landfill.

E&S Risks for Components 1 (C1)

E&S risk for C1 is considered low to moderate. Activities to be implemented under these components will be limited to technical assistance (TA); procurement of equipment and other goods/supplies; policy development; training, workshops, and other capacity building. However, the TA related to 3R, NPAPs, and scaling-up small-scale plastic waste reduction, collection and processing initiatives including waste banks for plastics collection at villages and schools, composting at schools, waste separation at the household level in target districts, training support for the informal sector with a focus on women and piloting refill and reuse stations with a focus on tourism hotspots. The proposed activities under the C1 will create positive impacts on GOL efforts to improve overall capacity on ERM, pollution control, and waste management. However, there are possible risks 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-SMP);
- 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 5A)
- The risks and negative impacts of the implementation of the TA related to 3R, NPAPs, and Pilot investment projects/activities are expected to be 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

[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.

and/or rehabilitation of small and/or very small civil works. This will be mitigated by a simple ESCOP (Annex 6A) or Simple Do and Don't Measures (Annex 5B), LMP (Attachment 1B of the SIA-SMPs). The social assessment and analysis of possible in informal waste workers and the value chain of actors associated with plastic collection, recycling, also businesses who use plastics, may place any restrictions or costs will be included in the TOR for TA activities.

E&S Risks for Component 2 (C2):

Component 2.2 will finance waste and plastics management infrastructure investments at three sites in Vientiane Capital include: (i) a new waste transfer and composting station in Naxaythong district; (ii) upgrading the KM16 transfer station in Xaysettha District; and (iii) rehabilitation of the existing landfill at the Km32 in Xaythany District. Component 2.2 will provide TA to VCOMS for waste management planning, operation, monitoring, waste service delivery, and cost recovery at the local level.

The overall risks and impacts of C2 are classified as moderate to high. The high E&S risks are associated with the operation phase and are mainly due to the risks of continued and long-term impacts of legacy pollution from the existing waste management at the Km32 landfill. These are compounded by limited institutional capacity and resources pertaining to the operation of waste management facilities. Key risks and impacts of legacy pollution at Km32 landfill include: leakage of leachate, contaminate runoff or toxic and infectious waste components into surface water, soil and groundwater resources; impacts on aquatic and agricultural resources from polluted water resources; air pollution and malodor from landfill operations and landfill fire; concerns on community health due to release of leachate and air pollution from the open dumps and occasional landfill fire; and poor occupational health and safety conditions and sanitation. The E&S risks and impacts associated with the pre-construction and construction phases are assessed to be moderate, temporary and localized.

To ensure that the E&S risks and impacts from the Project will be assessed and managed to an acceptable level, a Pre-ESIA has been prepared for the proposed activities at the Km32 landfill based on the preliminary design and pre-feasibility study. The Pre-ESIA has confirmed that the Km32 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; poor health and safety and sanitation, and concerns on community health as discussed earlier. 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 mentioned sensitive environment receptors (surface and groundwater, soil, air, etc.) in and nearby Km32 landfill has been affected by pollution from legacy waste. Any ongoing or future impacts from

legacy waste are proposed mitigated by regrouping the waste and constructing a low permeable cap on the waste.

Based on the proposed Project activities at the Km 32 landfill described in the preliminary design and pre-feasibility study, the Pre-ESIA has identified several opportunities for reducing ES impacts through strengthening the originally proposed conceptual technical design as the preferred project alternative. This strengthened technical design proposed in the Pre-ESIA is considered a preferred alternative, which has been adopted and incorporated in PWMP; however, the proposed design will be further evaluated and developed during the Detailed Design.

The project design will be subject to a full-scale environment and social impacts assessment (ESIA) as required by WB ESF and GOL regulation and will also covering the proposed project activities at the waste transfer stations in Naxaythong District and at Km16.

Cumulative risks and impacts are primarily related to legacy waste and legacy leachate ponds on the adjacent 30 ha large site as well as the ongoing and proposed waste management activities under a private investor, Vientiane Waste Management Company (VWMC) on the site. The VWMC site shares the same airshed and watershed as the VCOMS site and lies over the same groundwater resources. The potential impacts from the legacy waste and legacy ponds on the VWMC site include discharge of polluted leachate and leakage into groundwater resources. Potential impacts from VWMC's ongoing and future activities include surface water and groundwater pollution from VWMC's waste storage areas or wastewater ponds.

The potential impacts from the legacy waste on the VWMC site are proposed mitigated under PWMP by installing a low permeable cap on the waste applying the same design as proposed for the legacy waste on the VCOMS site. In terms of impacts arising from VWMC's activities, VWMC has developed an ESIA and EMMP for their current and future activities on the site, which has been approved by MONRE and which include mitigation measures addressing the potential impacts. Considering the implementation of the Km 32 Landfill Project with the preferred design and mitigation measures including capping of all legacy waste and remediation of the ponds on both the VCOMS site and the VWMC site; and the mitigation measures to be implemented by VWMC according to their EMMP, the cumulative risks are assessed to be reduced to an acceptable level. In addition, Component 1 under PWMP will establish a coordination mechanism among VCOMS, VWMC, MPWT, MONRE and PONRE to address environmental, social and health and safety issues. This will strengthen the regulatory oversight and improve compliance with regulatory environmental requirements.

The key E&S risks and impacts and proposed mitigation measures of the C2 are provided in Section 4.3 while the details are provided in the standalone Pre-ESIA and SIA-SMP.

Risk and Impacts on Climate Change:

An analysis on risk and impacts of the Project on climate change and details are provided in Section 4.4 of the main text.

E6. Environmental and Social Management Procedures

The ESMF describes procedures for (i) Criteria for site Selection for Naxaythong and new construction materials sites provided in Annex 2; (ii) guidance note on regulatory impact assessment provided in Annex 3; and (ii) guidelines for preparation of site specific ESIA and ESMPs provided in Annex 4 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 GOL will implement the project through existing institutions at the central and provincial levels, based on their legal mandates. The MONRE is the lead agency for Component 1, the MPWT is the lead agency for Component 2. Project activities are implemented by several agencies under the MONRE, MPWT, and VCOMS. A Project Operational Manual—containing detailed information on the project implementation arrangements and processes, including coordination mechanisms, project management, M&E, reporting arrangements, procurement, financial management (FM), disbursements, and the environmental and social framework (ESF) has been developed and will guide the agencies during implementation. Gender focal points will be assigned at the EPF/MONRE and MPWT to oversee the gender activities and support reporting on gender-relevant indicators.

A national project steering committee (NPSC) will provide high-level oversight, and a technical committee will provide technical direction for the project. The PSC will be chaired by the Minister of MPWT and comprise the VC vice governor, the Director General (DG) of the DHUP, and the Executive Director of EPF. The EPF's technical committee (TC) will help oversee the technical direction of the project. The project's implementing agencies are represented on the NPSC, and these committees will meet regularly to discuss the project's implementation progress and resolve any challenges. A project coordinating unit (PCU) will be established at the EPF to support project management and oversee the implementation of Components 1.

The MPWT will establish a Technical Coordination Committee (TCC) for Component 2. The TCC will be responsible for overseeing procurement, financial, environmental, and social management, preparing annual work plans and budgets, monitoring and evaluating activities, consolidating results and communications with the World Bank, managing project accounts, ensuring quality control, and conducting periodic audits. It will be convened and chaired by the MPWT vice minister and include the DGs of MPWT's DPF, DHUP, VC Department of Public Works and Transport, and PTI, and the head of VCOMS. The PMU will serve as the secretariat of the TCC and will include technical staff from DHUP, DPF, and PTI.

E8. Consultation and Stakeholder Engagement

During preparation of the ESF instruments, Focus Group Discussions (FGD) were carried out on 11 August 2022 by the EPFO 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. There were representatives from village authorities, local residents, informal waste pickers[2], and registered waste pickers at the Km32. The team were divided into two teams and carried out the FGD at the three locations on the same date and during FGD the participants were divided into small groups of 8-10 participants. Key Informant Interviews were undertaken during 09 to 16 August 2022 with a total of 22 key representatives (9 women) from DOE, DINE, NRERI, PTI, DHUP, 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) were disclosed on 29 November 2022 (https://laoepf.org.la/en/esf-documents-for-PWMP/) and revised draft on 23 December 2022 (https://laoepf.org.la/en/esf-documents-for-PWMP-2/). A full-day public consultation at the national level was held on 20 December 2022). The details were provided in the project's Stakeholder Engagement Plan (SEP).

E9. Grievance Redress Mechanism (GRM)

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 PWMP 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 due to low literacy levels or lack of Lao language.
- Grievances related to 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). Some of these may be specific to ethnic groups.
- Job-related disputes (detailed in the project's LMP).

[2] General villagers who are seasonal waste pickers

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 E&S management practices;
- Ensure the efficiency and quality of the E&S assessment processes;
- Establish evidence- and results-based E&S 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 C2 while the EPFO PCU will be responsible for monitoring and reporting for C1 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 **USD1,583,200** plus the costs of specific mitigation measures in the ESMPs, ARAPs and EGEPs (if applicable). The cost for ESMF implementation for C1 is estimated at **USD822,000** while for C2 is estimated at **USD761,200** including the cost for full ESIA study. Cost for implementation of the site-specific ESMPs for C2 will be part of the construction contract cost. Funds for implementation of the E&S training, monitoring, and capacity building for C1 will be from the project management of C1 while that for C2 is part of C2 budget. This budget is indicative only and should be further refined during the preparation of a full ESIA for Component 2 and its site-specific ESMPs. The cost for resettlement and compensation will be the responsibility of the Government of Laos (GOL) if necessary. The cost of the implementation of E & S measures by the contractors will be included under contractor's contracts while the cost for External Monitoring for C2 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 and will be covered by the MPWT. See Annex 6 for 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 Laos Pollution and Waste Management Project (PWMP or the Project) for possible financing by the World Bank (WB) to be implemented in 6 years period with a budget of about US$ US $37.85 M 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 project based on the project design, prefeasibility study of investments under Component 2, and further information collected to support preparation of ESF instruments in August 2022. 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. The main development objective of PWMP is to to strengthen capacity for waste and pollution management, improve municipal solid waste services in targeted areas, and provide immediate and effective response in case of an Eligible Crisis or Emergency.

5. The PWMP will also contribute to the SEA-MaP[3] program development objective (PDO), which is to reduce plastics consumption, increase recycling, and minimize leakages to prevent land- and sea-based marine plastic pollution in Southeast Asia.

6. The Project 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.

7. 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

[3] The PWMP will be one of the national-level projects contributing to the Southeast Asia Regional Program on Combating Marine Plastics (SEA-MaP) (P175659) which was approved in June 2022 and follows a Series of Projects (SOP) approach to support marine plastics solutions at the regional and national levels.

management operations through technical assistance and investments in infrastructure and equipment focusing in priority areas in Vientiane capital. The Project will facilitate the creation of models for solid waste management in target areas that can demonstrate improved and cost-effective performance and serve as inspirations for other areas.

8. The Project will seek to comprehensively support stakeholder collaboration across all aspects of the sector, most notably MONRE, MPWT, key sector agencies, and local governments responsible for solid waste management.

9. The Project will measure its success by the following indicators:

(a) Strengthen Laos' monitoring and enforcement of pollution control:
   i. Entities which are monitored for pollution compliance according to the new compliance monitoring system (Number).

(b) Improve waste management in targeted areas in Lao PDR:
   ii. Municipal solid waste collected that is recycled, composted, and/or safely treated in Vientiane Capital (Percentage).
   iii. People provided with access to improved municipal solid waste management services in Vientiane Capital (Number).
   iv. 'Plastics policies, guidelines, or standards established and aligned with the Regional Action Plan' (Number). This is the common indicator of the SOP.

1.3 PROJECT COMPONENTS

10. The project activities will be implemented through the following 3 components (Please see PAD for a detailed project description). The project activities in Component 1 will be implemented by: MONRE's Department of Environment (DOE), Department of Natural Resources and Inspection (DNEI), Natural Resources and Environment Research Institute (NRERI), Department of Water Resources (DWR) and EPFO. The MPWT (DHUP and PTI) and the VCOMS will implement Component 2.

- ***Component 1. Strengthening Capacities for Waste, Plastics, and Pollution*** The objective of this component is to strengthen the GoL's policies and capacities for pollution control and waste management. Activities under Component 1 are organized as two subcomponents. (see Table 1-1).

Table 1-1: C1 Subcomponents (reference: revised PAD/Jan 2024)

Component	Lead Implementing Agency
Component 1: Advancing System for Waste and Pollution Management	MONRE
Subcomponent 1.1: Upgrading Pollution Monitoring and Enforcement a. Develop (i) standard procedures for monitoring and evaluation of investment projects' compliance with Laos' environmental	MONRE

regulations; (ii) a compliance monitoring system for tracking environmental performance of investment projects; (iii) regulations for penalties for non-compliance with environmental regulations. b. Undertake compliance monitoring with focus on air and water pollution in the hydropower, mining, agriculture and industry sectors, and providing technical assistance to investment projects for improving environmental compliance. c. Provide technical assistance for strengthening air and water quality monitoring systems and for integrating the air and water quality data and information with the GoL's environmental compliance monitoring system. d. Provide technical assistance for enhancing capacity in other priority areas of ERM including on (i) ESIAs for the agriculture, mining, hydropower and industry sectors; and (ii) integrating climate risk and mitigation management as part of ERM interventions in the four priority sectors for environmental regulation.	
Subcomponent 1.2: Strengthen Waste and Plastic Management System a. Develop a National Waste Management Decree on non-hazardous and hazardous waste and relevant sub-regulations on waste management measures such as waste minimization, separation at source, service delivery, waste tariff collection, and budgeting for waste management and establish a cross-ministerial National Solid Waste Management Coordination Committee to support implementation of the Decree and regulations. b. Develop a national waste and pollution data and information system, and SOPs for data collection, data sharing and usage methodology for use by both national and local government. Collected data in this information system would be used to measure the progress of this project. c. Provide technical assistance and finance for implementation, monitoring and enforcement of the National Plastics Action Plan (NPAP).[4] d. Provide finance for scaling-up small-scale plastic waste reduction, collection and processing initiatives including waste banks for plastics collection at villages and schools, composting at schools,	MONRE

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

waste separation at the household level in target districts, training support for the informal sector with a focus on women and piloting refill and reuse stations with a focus on tourism hotspots.	
Subcomponent 1.3: Component 1 Coordination and Reporting. a. This subcomponent will finance fiduciary management, environmental and social risk management for Component 1. The Environment Protection Fund (EPF), which is a government fund created to mobilize funds for environmental and natural resources management, and one of the implementing agencies will lead this subcomponent.	EPF

- ***Component 2: Improving Municipal Solid Waste Services in Vientiane Capital.*** This component aims to enhance the capacity of MPWT and the Vientiane City Office for Management and Services (VCOMS) to improve their capacities in the policy development and implementation of solid and plastic waste management**.** Activities will be implemented through the following two subcomponents i.e. Subcomponent 2.1 focusing on capacity building for waste management planning, operation, monitoring, waste service delivery, and cost recovery at the local level and Subcomponent 2.2 focusing on waste and plastics management infrastructure investments (see Table 1-2).

Table 1-2: C2 Subcomponents (reference: revised PAD/Dec 2024)

Component	**Lead Implementing Agency**
Component 2: Improving Municipal Solid Waste Services in Vientiane Capital	**MPWT**
Subcomponent 2.1. Municipal Solid Waste Service Planning, Operation, Monitoring, and Cost Recovery in Vientiane Capital: a. Developing local regulations and strengthening capacity for waste management planning; financial and revenue management including tariff and tipping fee setting, contract management and supervision of private waste operators; and waste recycling at KM32 landfill, transfer stations and landfill operations and management. b. Developing a waste management plan for Vientiane Capital that includes waste collection zones; waste collection schedules; resources management; fee structures (tariff, tipping fee); contract management; approaches for enhancing collection of tariffs and tipping fees; awareness raising and engagement with waste service users; waste facilities management; and waste data collection and regular environmental monitoring.	MPWT (DHUP, DPWT and PTI) and VCOMS

c. Developing operational manuals for equipment maintenance, transfer stations, composting facilities, and landfill management including site selection, standard landfill design, standard operational procedures for construction, day-to-day operation, risk management, pollution monitoring, environmental and social safeguards, and landfill closure process. The operational manual for landfill will include the long-term plan for KM32 landfill upgrading and operation. d. Establish a registration system of informal waste pickers at KM32 landfill and provide support for improving waste pickers working conditions through: i. Vocational skills building and training, provision of protective equipment and health and safety training. ii. Interventions for improving female workers' access to jobs in the SWM sector described in the Gender assessment section (Section C) of PAD. iii. Support measures for children engaged in waste picking described in Annex 2 of PAD. iv. Allowing informal waste workers to safely access incoming waste at the KM32 landfill. e. Investment preparation for solid and plastic waste infrastructure and equipment. This will include preparation of a feasibility study and detailed design, site-specific Environmental and Social Framework (ESF) instruments, an action plan for environmental and social legacy issues, and bidding documents	
Component 2.2: Municipal Solid Waste Service Infrastructure Investments in Vientiane Capital, with following activities a. Rehabilitate the KM32 landfill to extend its lifetime by at least 10 years with financing for: i. Civil works – capping and closing waste cells, relocation (and compacting) of existing waste, construction of new sanitary landfill cells to accept incoming waste, rehabilitating the existing leachate pond, constructing an internal access road in the landfill and regulation pond and leachate treatment facility, installing methane	MPWT (DHUP, DPWT and PTI), and VCOMS

gas capturing pipes and leachate collection piping system, developing a waste reception area[5], clean-up of legacy waste in concession area[6], and building bathroom facilities for waste workers and upgrading of the administration office. ii. Equipment – a weighbridge and washing, crushing, and pelletizing equipment at the waste management community centre for informal waste workers, a solar plant for on-site electricity generation, trucks and other equipment for landfill operation. b. Establish the Naxaythong transfer station and composting facility (north-west of VC) with financing for: i. Civil works – build a waste transfer facility that will segregate organic waste, aggregate and compact regular waste for transfer to bigger waste transportation vehicles. The transfer station will also have a composting plant, administration office building, vehicle maintenance workshop and bathroom facilities for waste workers. ii. Equipment - weighbridge; transportation truck, wheel loader, forklift and other equipment for transfer station operation. c. Upgrade the KM16 transfer station in Xaysettha District[7] with financing for: i. Civil works - waste transfer facility for segregating organic fraction of waste, aggregate and compact regular waste for transfer to bigger waste transportation vehicles; upgrading the existing composting plant; and vehicle maintenance workshop, and bathroom facilities for waste workers. ii. Equipment - a weighbridge; transportation truck, wheel loader, forklift, and other equipment for transfer station operation. d. Increase the waste collection equipment in sub-urban districts with financing for: i. Equipment including various size of waste collection vehicles from tricycles, waste-carts, collection bins, community collection point set-up, and waste containers.	

[5] During the Detailed Design at KM32, the project will determine the precise location of the new sanitary landfill cells within the KM32 landfill area.

[6] A private company holds a 30-hectare concession adjacent to the VCOMS landfill site, which contains legacy waste previously disposed of by VCOMS.

[7] Currently, the transfer station does not have any sorting and recycling functions.

Subcomponent 2.3: Project Coordination and Reporting. a. This subcomponent will finance the costs of project management, monitoring, learning, and coordination across the implementing agencies. It will finance fiduciary management, environmental and social risk management for Component 2, and gender and civil engagement, communication, results and impact monitoring, and reporting for the entire project.	MPWT (DHUP and DPF)

- ***Component 3. Contingency Emergency Response Component (CERC).*** This component will provide an immediate response to an Eligible Crisis or Emergency, as needed. In an Eligible Crisis or Emergency, the GoL can seek reallocation of project funds to support emergency response and recovery.

11. **Project Financing.** The total project financing will be US $37.85 M, of which US $34.5 M is from the National IDA19 country allocation, and US $3.35 M is from the PROBLUE grant for plastic related activities. The project's costs breakdown and indicative financing by component and subcomponent are shown in Table 1-3.

Table 3-*3*: Project Cost by Component

Component/Subcomponent	IDA (US$M)	PROBLUE (US$M)	Total (US$M)
Component 1: Advancing Systems for Waste and Pollution Management	**4.52**	**3.35**	**7.87**
Subcomponent 1.1: Upgrading Pollution Monitoring and Enforcement	3.64	0	3.64
Subcomponent 1.2: Strengthen Waste and Plastic Management System	0.15	3.35	3.50
Subcomponent 1.3: Component 1 Coordination and Reporting	0.73	0	0.73
Component 2: Improving Municipal Solid Waste Services in Vientiane Capital	**29.98**	**0**	**29.98**
Subcomponent 2.1: Municipal Solid Waste Service Planning, Operation, Monitoring, and Cost Recovery in Vientiane Capital	1.65	0	1.65
Subcomponent 2.2: Municipal Solid Waste Service Infrastructure Investments in Vientiane Capital	26.64	0	26.64
Subcomponent 2.3: Project	1.69	0	4.49

Management and Coordination			
Component 3: Contingent Emergency Response Component	**0**	**0**	**0**
Total	**34.50**	**3.35**	**37.85**

1.4 PROJECT LOCATIONS

12. Under Component 1, the Project activities will be implemented nationwide on the part related to policy, regulations, and technical assistance (TA) related to Reduce, Reuse, and Recycle (3R), the National Plastic Actions Plan (NPAP), and pilot for improving environmental compliance of investment projects and activities will be conducted in Vientiane Capital and nearby provinces and the target areas to be identified during Project implementation according to the objective and scope of the proposed activities to be discussed and agreed with WB.

13. Component 2 will finance priority 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 (the existing landfill) 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 composting facility. Site selection criteria, including environmental and social criteria considered for Naxaythong site selection is presented in Annex 2. The Project Areas of Influence for Component 2 will cover transportation routes between collection points to transfer stations, and transfer stations to KM32 landfill site, existing landfill at KM32 which the project will rehabilitate, existing transfer station at KM16, new transfer station in Naxaythong district, and auxiliary facilities including worker camps, and borrow pits. More details description on project locations for investments under Component 2 are provided in *Section 3.4* and details of project activities and sensitive environmental and social receptors at Km32 landfill are provided in in a Preliminary Environmental and Social Impact Assessment (Pre-ESIA) prepared for KM32 landfill rehabilitation.

2 LEGAL AND INSTITUTIONAL FRAMEWORK AND WB ESF REQUIREMENTS

2.1 NATIONAL LEGAL FRAMEWORK

14. 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 PWMP Project are listed in Table 2-1 below while details are provided in ***Annex 1***.

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. 389/GoL, dated 20/10/2022 • 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.
Labour: OHS, child labour non-discrimination, freedom of association, worker grievance;	• 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;

Subjects	Related national policies, strategies, laws, regulations
labour code; Sexual Exploitation and Abuse/ Harassment (SEA/SH)	• 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. • 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)

15. 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 relevant to the project (Table 2-2). These include:

- ESS1 – Assessment and Management of Environmental and Social Risks and Impacts;
- ESS2 – Labor 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.

16. Potential E&S risks related to Component 2 are different from those related to Components 1 and 3. 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 2 and Components 1 and 3 activities. This is also consistent with the implementation arrangement of the project.

2.2.2 ESF Instruments Prepared for the Project

17. The following E&S instruments have been prepared during project preparation to manage E&S risks from the Project activities in the manner consistent with the ESF requirements and objectives:

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

b. 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.

c. Environmental and Social Management Framework (ESMF). This ESMF sets out the principles, rules, guidelines and procedures to assess and mitigate the E&S risks and impacts of the Project based on information currently available for all Project components. For Component 2, it draws on the prefeasibility study of the proposed investments and the Preliminary Environment and Social Impact Assessment (Pre-ESIA) conducted for the specific site at Km 32. The ESMF contains measures and frameworks

to reduce and mitigate adverse E&S risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on agencies responsible for Project implementation 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). The social instruments (LMP, CHSP, COC, RFP and EGEF) to be applied to all components are provided in a standalone SIA-SMP.

d. 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 described baseline information on the E&S baseline conditions 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.

e. 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 of the SIA-SMP).

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

Key objectives	Relevance to the PWMP 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	Overall, the project is classified as 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 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 which may be required as part of the TA for 3R, NPAPs, and pilot investments/activities. The risks and negative impacts of 1 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 5A); and Do and Don't Measures (Annex 5B) Component 2 (C2) 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) rehabilitation of the existing landfill at the Km32 in Xaythany district. The activities will also include supports and TA to VCOM on waste management planning and operations. In this context, the overall risks and impacts of C2 are classified as moderate to high. The E&S risks and

Key objectives	Relevance to the PWMP Project
assessment, development and implementation of projects, where applicable; • Promote improved social and environmental performance, in ways which recognize and enhance Borrower capacity.	impacts associated with the pre-construction and construction are assessed to be overall moderate (except for OHS risk which is rated substantial), temporary and localized while the E&S risks and impacts associated with the operation phases are assessed to be high due to the existing waste at the Km32 Site and associated legacy risks and impacts such as degraded surface and soil and groundwater quality and impacts on aquatic and agricultural resources, and community health 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); and (ii) weak legal and institutional capacity on waste management. To ensure that the E&S risks and impacts from the Project will be assessed and managed to an acceptable level, a Pre-ESIA has been prepared for the proposed activities at the Km32 landfill based on the preliminary design and pre-feasibility study. The Pre-ESIA has confirmed that the Km32 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 mentioned sensitive environment receptors (surface and groundwater, soil, air, etc.) in and nearby Km32 landfill has been affected by pollution from existing waste. Based on the proposed Project activities at the Km 32 landfill described in the preliminary design and feasibility study, the Pre-ESIA has identified several opportunities for reducing ES impacts through strengthening the originally proposed conceptual technical design as the preferred project alternative. This strengthened technical design proposed in the Pre-ESIA is considered a preferred alternative that will be further evaluated and developed during the Detailed Design.

Key objectives	Relevance to the PWMP Project
	The project design will be subject to a full-scale environment and social impacts assessment (ESIA) as required by GOL regulation and will also covering the proposed project activities at the waste transfer stations in Naxaythong District and at Km16. 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). Some of these impacts will be assessed as part of the preparation of NPAP and other related activities on the sector, including policy and legal / regulatory support. The assessment of poverty and social impacts as well as related consultation activities will be integrated in the TORs for such TA assignments.
ESS2 (Labor 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 vulnerable workers such as women, person with disabilities, children (of working age, in accordance with WB's ESS) and migrant workers, contracted	<u>Component 2:</u> The main risks relating to labour and working conditions are related to the construction and operation of solid waste disposal sites and recycling facilities. These are contracted workers (employees of civil works contractors and subcontractors, service providers, employees of consulting firms. Risk and impacts related to this are the following: i) employment discrimination of women and/or vulnerable groups; ii) payment for unskilled workers below the minimum wage[8] 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 equipment (PPE); (v) labour related disputes, (vi)

[8] 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 PWMP Project
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.	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 2 (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 2 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</u> The PCU of EPFO will ensure full compliance with the proposed LMP (Attachment 1B) to be applied to

Key objectives	Relevance to the PWMP Project
	Components 1.
ESS3 (Resource Efficiency and Pollution Prevention and Management): Relevant	
• 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 2:</u> For Component 2, the "Integrated Waste Management System (IWMS)" concept which attempts to address the whole waste value chain is applied for the technical design of the PWMP. The project will overall help to reduce waste to the KM32 landfill in Vientiane Capital through interventions at different nodes along the waste value chain. The project will establish two waste transfer stations (at Km16 and Naxaythong district) and each will be equipped with sorting facilities to extract the recyclable wastes and compostable waste and minimize residual waste that will be brought to the KM 32 landfill in line with 3R principle. The site-specific ESMP 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:</u> For Components 1, 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 3R, GCB, and NPAP through ESCOP (Annex 5A) or Do and Don't Measures (Annex 5B)

Key objectives	Relevance to the PWMP Project
ESS4 (Community Health and Safety): Relevant	
• 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; • 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.	<u>Component 2:</u> For Component 2, the main risks and impacts of the community health and safety include: (i) health impacts from an increase in illegal dumpsites (as a result of increased waste dumping fees in the Km32) ; (ii) problems on respiratory system of people living nearby landfills from toxic smoke accidental landfills fire.; (iii) road damages and road accidents associated with transportation of waste to the landfill and recycling facilities; (iv) the leachate from the landfill or recycling facilities, when not properly collected and treated may pollute the drinking water source for the communities; (v) land fill fires caused by bio-gas ignition, accident or arson with impacts on respiratory health 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 be identified in the site-specific ESMP to be prepared during the preparation of full ESIA for Component 2 (Annex 4) 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. Background checks and security training will be conducted for contractor and VCOMS workers to ensure no history of abuse and no incidents of undue use of force regarding local communities. The Project also has a potential risk of spreading COVID19 to communities and implementation of the

Key objectives	Relevance to the PWMP Project
	CHSP will 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 4). <u>For Components 1 and 3.</u> The PMU of EPFO will ensure full compliance with the proposed CHSP (Attachment 2 of SIA-SMP) to be applied to Components 1 and 3.
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-	Screening of Component 2 investment sites and activities indicates no acquisition of private land and economic displacement will be required for the rehabilitation of Km32 Landfill and Transfer Station of Km16 because the land at both locations are exclusively owned by VCOMS and there are not informal residents or community land use. However, the Naxaythong facility (location is being considered) may require land acquisition which could also impact on livelihoods. Air quality monitoring stations are foreseen to be placed within the compound of district MONRE offices and as such unlikely to require land acquisition. The assessment of poverty and social impacts as well as related consultation activities can be integrated in the TORs for such TA assignments. A Resettlement Policy Framework (RPF) as part of SMP 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 and 3, activities will not require land acquisition, resettlement, etc. as minor civil works under GCR/3B will only related to waste bank activities (construction and operation of small plastic waste,

Key objectives	Relevance to the PWMP Project
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 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.	paper waste, and recyclable wastes storage on public land (school, temple, market, etc.).
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	For Component 2: There is no biodiversity significance as the project activities at Km 32 and Km16 will be carried out inside existing landfill and waste transfer station. Areas nearby the site were disturbed for agricultural purposes. Some rubber trees and banana tress remained on site. Site for new transfer station in Naxaythong is being identified. Screening criteria will be applied to

Key objectives	Relevance to the PWMP Project
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 priorities.	minimize impacts on biodiversity. The Pre-ESIA has been prepared as a standalone document during preparation of this ESMF. The full ESIA and site-specific ESMP will be prepared by the MPWT PMU for C2 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 4). Site selection criteria for Naxaythong site under C2 (Annex 2) will be applied for screening.
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	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 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 2:</u> As the Naxaythong location is being considered and will not be known prior to appraisal (for example PPP under Component 2 for waste recycling) an Ethnic Group Development Framework (EGPF) will be included

Key objectives	Relevance to the PWMP Project
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 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 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. <u>Components 1.</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 (Attachment 5 of SIA-SMP)

Key objectives	Relevance to the PWMP Project
in a timeframe acceptable to them.	
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 stakeholders regarding cultural heritage; and • Promote the equitable sharing of benefits from the use of cultural heritage.	<u>Component 2:</u> Cultural Heritage impacts are unlikely to occur in C2 (Km 32 and Km 16 does not have identified cultural heritage sites). 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 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 agencies 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.</u> This standard is relevant because there might be tangible and intangible cultural heritage within the sites identified during small/minor civil works supported under TA for 3R and NPAPs, TA for pilot investment for improving environmental compliance 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 5A).
ESS10 Stakeholders Engagement and Information Disclosure: *Relevant*	
• Establish a systematic approach to	A Stakeholders Engagement Plan (SEP), including a GRM, has been prepared incorporating the findings

Key objectives	Relevance to the PWMP Project
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 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,	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 by the World Bank Task Team, EPFO, and DHUP, the draft ESF Instruments were revised and disclosed on 29 November 2022 at the EPFO website[9]and consulted with stakeholders at the national level on 20 December 2022. The findings from the national stakeholder consultation had been incorporated into the ESF instruments prior to project appraisal.

[9] https://laoepf.org.la/en/esf-documents-for-PWMP/

Key objectives	Relevance to the PWMP Project
understandable, accessible and appropriate manner and format.	

2.3 GAP ANALYSIS: WB ESF AND LAO LEGISLATION

18. 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 EPFO 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 ESSs.

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 Difference 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.	• 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.	• The Project activities under C1 will continue to support GOL efforts to strengthen its capacity for waste and pollution management, and improve municipal solid waste management in target areas in Lao PDR and policy and regulations related to environmental risk management (ERM) measures such as EIA, IEE, 3R, NPAP, TA and capacity building of local authorities to be implemented under Component 1 will clearly support urban cleanliness, waste reduction, pollution control, and overall ERM capacity of GOL. This will indirectly impact the quality of health of residents, which

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	• Identification and differentiated approach towards potentially vulnerable and disadvantaged or vulnerable groups as this aspect may come up in relation to informal waste workers.	However, the final clause of this Decision asserts that any projects that cause involuntary resettlement shall require the conduct of ESIA.		will lead to healthy long lives, money savings on health medication and support for urban poverty alleviation. • Application of site selection criteria for Naxaythong site under C2 (Annex 2) • 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, EPFO PCU, VCOMS, SIAs; 3R and GCB Receivers. • Additional capacity development and training programs on safety and

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
				mitigation of social impacts during civil works for C2 with the support consultants are included in Project design and ESMP mitigation measures. • Provide adequate budget supports to build EPFO and all implementing agencies 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	• 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	• 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	The national Labour Law is generally consistent with ESS2 with a few exceptions. To address some of the gaps, the project's LMP (Social Impact Assessment – Social Management Plan (SIA-SMP) Attachment 2 for C2 and 2.2 for C1,2 & 3) includes: • Procedure to Prevent Child Labour and Forced Labour

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	• 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 • Training of workers and maintenance of training records • Documentation and reporting of occupational accidents, disease, and incidents. • Emergency Preparedness; and	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.	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 bargaining or alternative mechanisms. • There is no specific national guideline for labour conflict resolution.	(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 Workers. • Environmental, Social, Health and Safety Specification (ESHSS) for contracts. • Community Labour Management Procedure. • Provisions in location and site - specific ESMP • Site-specific Occupational

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	• Remedies for adverse impacts on workers safety, including occupational health, and safety and SEA/SH.			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 adverse impacts on human health and the environment by avoiding or minimizing pollution	• 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 Efficiency (2020), National Policy on Energy Efficiency (2016), Law on Water and Water	• 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 of government. • Similar to AQM, WQM also faces capacity and resource constraints including lack of	• 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, management, and prevention the pollution through project activities of the project component 2 including site selection and design options, construction, and solid waste collection, transfer,

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	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.	Resources (2017).	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	recovery and disposal operation. • The full ESIA and ESMP will be prepared by MPWT PMU.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
			waste infrastructures are 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	The Bank's Standard requires for Community Health, Safety	• Key legislation for community health, safety,	• Currently, there is no national law, regulation	• The Community Health and Safety Plan (SIA-SMP

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
Health and 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 carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to project affected communities.	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.	or guideline specific to community health and safety.	Attachment 2 for C2 and 2.2 for C1,2 & 3) provides guidelines on how to address the identification and mitigation measures associated with these issues. • Specific guidelines have been provided in terms of Labour Management Procedures (SIA-SMP Attachment 2 for C2 and 2.2 for C1,2 & 3) • Code of Conduct (COC) including SEA/SH Action Plan is provided in (SIA-SMP Attachment 3A for C2 and 3B for C1,2 & 3)
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary	• Avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project	• Key national legislation related to land acquisition and involuntary resettlement includes the Law on Land (2019);	• According to the Land Law (2019), Article 130: Acquisition of Customary Land Use Rights, rights can only be assigned to	• The project's Resettlement Policy Framework (RPF) (SIA-SMP Attachment 4) introduces some additions to the provisions established at

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
Resettlement	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 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	Forestry Law (2019), Law on Resettlement and Vocation (2018); and the Decree on Compensation and Resettlement (2016).	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 to the land; those with customary claims to land; and those with no legally recognized claims. • National regulations address livelihood restoration only in the context of physical	the Degree 84: ○ Avoidance of resettlement as the preferred option. ○ Rights of land users without formal title. ○ Alternative and/or substitute livelihood options. ○ Restoration of livelihood activities ○ Additional protection for vulnerable households ○ Disclosure, consultation and informed participation arrangements. • Provisions of the RPF, in line with ESS5, will apply in the project.

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	security of tenure at resettlement sites.		displacement due to infrastructure projects. By contrast, WB ESF requires consideration of Project induced livelihood impacts (economic displacement) even if occurs without physical displacement.	
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,	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	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 Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	designated for protection, the Borrower will ensure that any activities undertaken are consistent with the area's legal protection status and management objectives.		investing in projects that would degrade 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. • FPIC applies in particular circumstances as defined in ESS7 where a project will: i) Have adverse impacts on land and natural	• 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	• 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

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	resources; ii) Cause relocation from land and natural resources; or iii) Impact on material cultural heritage.		(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 customary land (e.g with smaller area or poorer quality of land) could increase inequality and their vulnerability.	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 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	• 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	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 Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
	requirements for chance finds, consultation, community access, removal of replicable and non-replicable cultural heritage, as well as critical cultural heritage.	Lao PDR on the Preservation of Cultural, Historical and Natural Heritage (1997). • Mandatory reporting to authorities (Ministry of Culture and Information and EPFO). 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 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		

Requirement	The World Bank Standard Requirements	Government of Lao PDR's requirements	Key Difference between WB Standard Requirements and Lao's PDR relevant to the Project	Measures included in the Project Design and ESF Preparation and implementation
		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 decree	• 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, and women

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

3 SUMMARY OF ENVIRONMENTAL AND SOCIAL CONTEXT

19. The project detailed activities to be implemented under Components 1 and 2 are provided in Section 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 provides brief environment baseline conditions of Vientiane Capital. Section 3.4 provide information of the selected sites to be implemented under Component 2B while more details description on the E&S baseline conditions of the Km32 Site are provided in the standalone Pre-ESIA report.

3.1 OVERVIEW ON E&S CONDITIONS IN LAO PDR[10]

20. 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%[11]. 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.

21. 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 areas12

22. 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%[13]. ()

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

[11] Lao Statistic Bureau, 2020a

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

[13] https://climateknowledgeportal.worldbank.org

Natural disasters, flood & drought

23. Lao PDR faces high disaster risk levels and is ranked 69th out of 191 countries by the 2019, due to 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[14].

24. **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

25. Despite being among the fastest-growing economies in the world before COVID-19, Lao'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.

26. 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.

27. 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

[14] https://climateknowledgeportal.worldbank.org

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.

28. 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.

29. 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.

30. 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.

31. 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

32. 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.

Pollution level, social and health aspect

33. 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.[15] 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.

34. 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[16]. 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.

35. 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 environmental issue in the 9th National Socio-Economic Development Plan (NSEDP),17 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.

36. Water pollution is also a significant environment challenge for Laos, and the GoL has

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

[16] Ibid.

[17] 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.

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.[18] 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.[19] 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.[20] 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.

37. 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. Waste collection and transfer systems to the dumpsites are not properly organized (waste collection trucks are not covered, overloaded and waste leakage before it even gets to dumpsite). 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 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.

38. 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

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

[19] Ibid.

[20] 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

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.

39. 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.

40. 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.

41. 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

42. **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[21] 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[22]. 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.

43. **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.

44. Cities in Lao PDR are small in population, with only the capital city Vientiane having a population of more than 100,000 people. 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

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

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

plastic bags can add value, but is rare.

45. 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/day[23]. 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 is 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. 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.

Regulations and institutional arrangements

46. 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.

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

47. 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 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.

48. 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

49. 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.

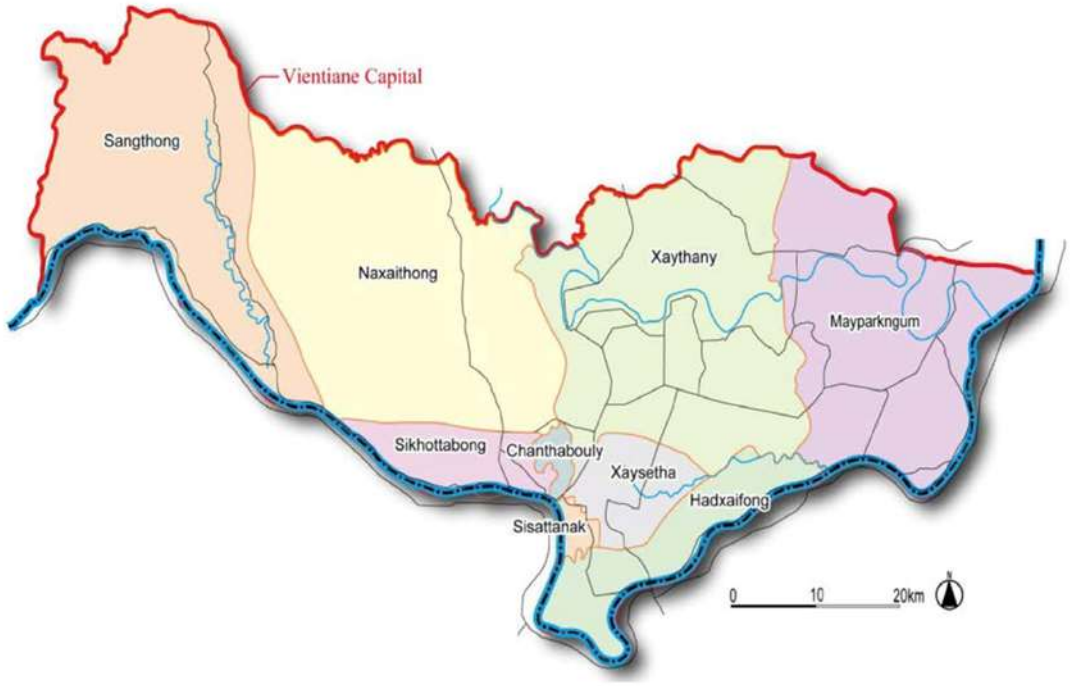


Figure 3-1 Map of Vientiane Capital (JICA, 2011a)

50. 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)

51. 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

52. Currently there is no regulation on municipal solid waste management (SWM), however the agreement of waste collection service in Vientiane Capital is applicable, while the waste collection fee is set by Vientiane City Office for Management and Service (VCOMS). VCOMS is responsible for management of the Km32 and Km16 while solid waste management in Naxaythong district is responsible by the Urban Development Administrative Authority (UDAA).

53. VCOMS is responsible for solid waste management 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

54. Vientiane capital has 161, 655 households with a total population of 948,447 people[24] 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[25].

55. 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)									
968,990	289,289	1,009,272	1,028,914	1,048,170	1,067,286	1,068,217	1,104,975	1,123,532	1,141,911
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[26] generation amount (Ton/day)									
275	291	308	327	347	367	389	413	438	464

[24] Lao Statistics Bureau (LSB)

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

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

MSW generation (Ton/day)									
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

56. Naxaythong is the proposed district for installing a new waste transfer station (new transfer station to be developed under this Project) under the Component 2. 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[27]	Waste Generation (ton/day)[28]	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 PROPOSED SITES TO BE INVESTED UNDER C2

57. 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

[27] Vientiane Health Department (2019)

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

landfill, and to mitigate the negative environmental and social impacts from waste management.

58. The brief baseline of the three sites to be invested under C2 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.

3.4.1 Vientiane Capital Landfill at Km32

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

- Civil works: capping waste cells, installing landfill liner, constructing an internal access road in the landfill and regulation pond and treatment facility, installing methane gas capturing pipes and leachate collection piping system, developing new sanitary landfill cells with waste reception area, developing hazardous waste storage, developing bathroom facilities including changing rooms (separate for male and female waste pickers and workers) and upgrading of the administration office including rest rooms, canteen, training rooms. All legacy waste to be provided with a low permeability cap.
- Equipment: a weighbridge and washing crushing and pelletizing equipment at the waste management community centre, a solar plant for on-site electricity generation, and trucks and other equipment for landfill operation.

  Figure 3-2 shows the Conceptual Landfill Design. More details are provided in the Pre-ESIA for the Km32.

Figure 3-2 The Conceptual Landfill Design (Pre-FS Report, June 2022)

60. 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 3-3).

61. The total area of the landfill site is 100 hectares is divided into two main sites:

- A 70 ha large area covering the 50 ha southern half of the entire site and 20 ha on the north-western part of the site. This site is managed by Vientiane City Office for Management and Service (VCOMS) and includes the active landfill disposal area, waste sorting operations, previous landfill cells and leachate pond. This site constitutes the Km 32 Landfill Project under PWMP.
- A 30 ha large are on the north-eastern part of the 100 ha site. This site is leased to Vientiane Waste Management Company (VWMC) under a concession agreement. The concession agreement dates back to 2011 and originally covered the 50 ha northern part of the 100 ha landfill site. The agreement was amended in 2019 and further amendments negotiated in 2023 are expected to be signed in early 2024. With these amendments, the land lease will be reduced to the said 30 ha. VWMC plans to establish waste management facilities including plastic recycling, composting for production of fertilizer, and production of Refuse Derived Fuel for generation of electric power in a waste-to-energy plant.

62. The VWMC facilities do 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.

63. 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. This private company, as a VCOMS's contractor, will also have ES related responsibilities as a contractor of VCOMS under the project I.e., on labor procedures, OHS, grievance mechanism, and livelihood options offered to informal waste workers.

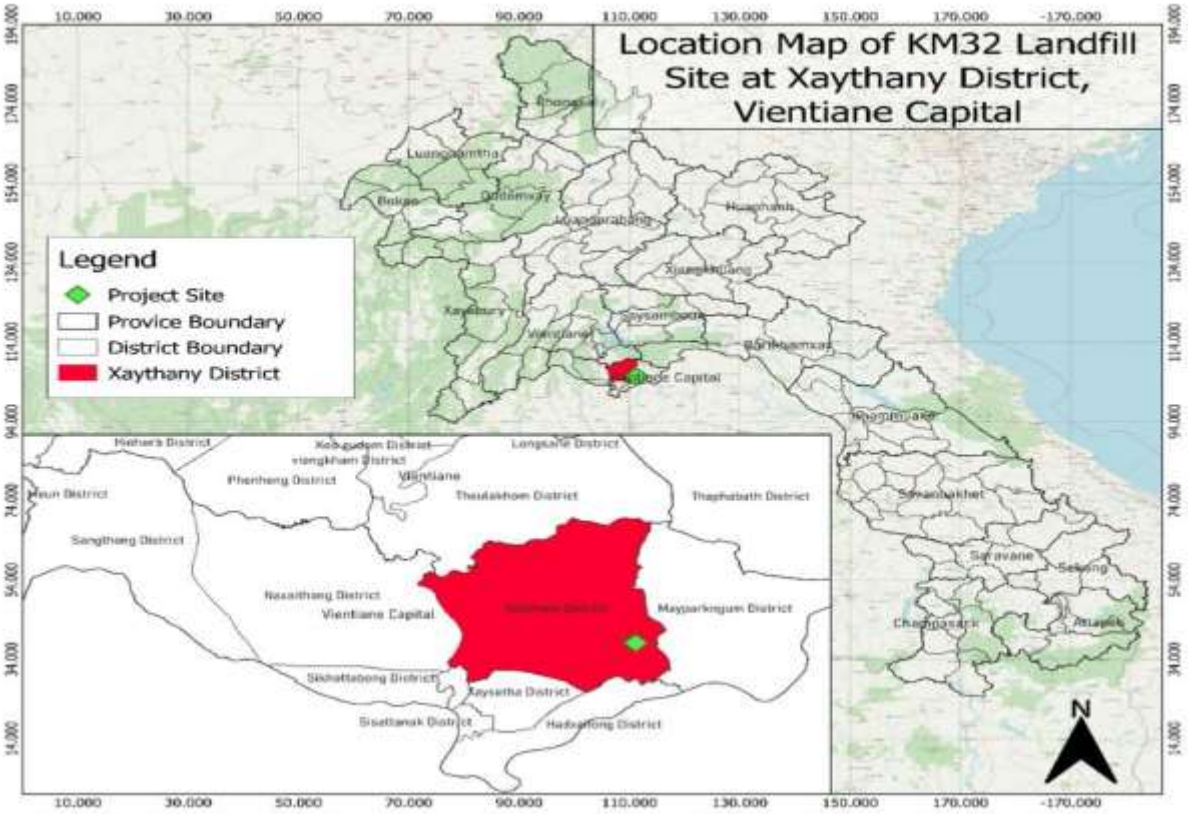


Figure 3-3 Location of Xaythany District, Vientiane Capital (Pre-FS Report, June 2022)

64. 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 3-4 for surrounding of the Km32 Landfill Project Site.

Figure 3-4 Surrounding of the Km32 Landfill Project Site

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

3.4.2 Waste Transfer Station at Km16

66. Under C2, upgrade the KM16 transfer station in Xaysettha District to be an Integrated Waste Management Facility with financing for:

- Civil works - waste collection, sorting, and material recovery facilities; upgrading the existing composting plant;
- Separate bathroom facilities including changing room for males and female workers and waste pickers.
- Equipment - a weighbridge; transportation truck, wheel loader, forklift and other equipment for transfer station operation.

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

68. 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.

69. 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 3-5). 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.

70. 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.

71. 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.

72. 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[29] (See Figure 3-7). **The detailed social baseline conditions of the KM16 will be collected and analysed during the full ESIA stage.**

73. 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.

[29] According to the WB IFC standard, it should be at least 250m radius buffer zone. According to Lao PDR Ministerial Decision on landfill management No.521/MPWT, residential receptors should be at least 300 m away from landfill.

Figure 3-5 Site location Map (Google Earth Image 2022)

3.4.3 Waste Transfer Station in Naxaythong District

74. Under C2, eestablishment of the Naxaythong transfer station and Integrated Waste Management Facility (in the north-west of Vientiane Capital) with financing for:

- Civil works - a material recovery facility, composting plant, administration office building including rest rooms, canteen, training rooms.
- Equipment - sorting, washing, shredding plastics waste equipment; weighbridge; transportation truck, wheel loader, forklift and other equipment for transfer station operation.

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

76. In the design of facilities attention will be given the needs of female and male workers (including for example separate bathrooms and changing rooms).

77. The Project will improve workplace safety for women and men through providing personal protective equipment (PPE), safety training and by improving site security protocols at waste facilities.

78. 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 km^2. 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.

79. 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 2. The E&S baseline conditions and the potential risk, impacts, and mitigation measures will be collected and analysed during the full ESIA stage under the Component 3.

80. 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.

81. **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

82. 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 are classified as low to moderate while the Component 2 E&S risks and impacts are classified as moderate 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.

83. 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

84. 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, EPFO, and selected local governments responsible for solid waste management.

85. Key benefits from project intervention through the efforts to improve policy and regulations related to environmental prevention measures (EIA, IEE, 3R, GCB, to be implemented under Component 1 including capacity building of local authorities 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 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.

86. The PWMP Project investments proposed under Component 2 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.

87. 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.

88. 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.[30]

89. 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.

90. The poor and near poor, on average 10 percent of the population,[31] are likely to experience significant positive impacts of collected waste, decreased waste burning, decreased pollution, and sanitary disposal of waste.

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

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

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

91. The overall risk rating of Component 1 is classified as low to moderate. Activities to be implemented under Component 1 will include technical assistance (TA); procurement of equipment and other goods/supplies; policy development; training, workshops, TAs and other capacity building including small and/or very small civil works such as installation of environmental quality monitoring stations.

The key E&S risks and impact of C1 are summarized below:

- Risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker[32].This will be addressed through the implementation of LMP (Attachment 1B of the SIA-SMPs);
- Inappropriate behavior 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 5A) or Simple Do and Don't Measures (Annex 5B);
- The E&S risks and negative impacts of the implementation of the activities and TAs related to 3R, NPAPs, and Pilot investment projects/activities to be implemented under C1 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 by a simple ESCOP (Annex 5A) or Simple Do and Don't Measures (Annex 5B), LMP (Attachment 1B of the SIA-SMPs) and social assessment and analysis of possible in informal waste workers and the value chain of actors associated with plastic collection, recycling, also businesses who use plastics, may place any restrictions or costs will be included in the TOR for TA activities.

92. The proposed project activities to be implemented under Component 1 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.

[32] 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

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
Component 1. Advancing System for Waste and Pollution (US$7.87 million (M) of which US$4.52 M National IDA, and US$3.35 M PROBLUE grant).				
• Subcomponent 1.1: Upgrading Pollution Monitoring and Enforcement	• OHS risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behavior by Project Worker during training, consultation workshops and working in communities or field data collection. • CHS Temporary risks and disturbances related to dust and noise generation including transmission of infectious diseases during installation of environmental quality monitoring stations. • Risks/Impacts due to land acquisition for ambient environmental quality monitoring stations are low as they are in government-managed land.	• Update, implement, monitor and report LMP (Attachment 1), COC on SEA/SH and VAC (Attachment 3B of the SIA-SMP); • Implement, monitor and report ESCOP (Annex 5A) or Simple Do and Don't Measures (Annex 5B); • Implement, monitor and report of GRM and SEP; • 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.	ESS1-5, 7 and 10	DOE-MONRE and PCU of EPFO throughout the project implementation
• Subcomponent 1.2: Strengthen	• Decree development or capacity	• The risks related to	ESS1-4,	DOE-MONRE

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
Waste and Plastic Management System	development or TA activities may result in downstream E&S risks if not properly assessed and consulted with all stakeholders. • Plans may generate unmitigated social or environmental impacts including impacts to businesses, waste collection/distribution/recycling value chains, including informal waste workers as a result of NPAP regulations and activities. • 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 infectious diseases (such as Covid-19) of Project Worker; • CHS and inappropriate behaviour by	development of decrees and TAs activities will be mitigated through implementation of regulatory impact assessment, which is also required under Lao Law (Annex 3 for the guidance note on regulatory impact assessment. • Social risk and impact assessment to be included in the TOR of the TA activities. This will also include the assessment on how much of the current waste collection is reliant on informal waste workers and how the value chains related to them may be affected with any new changes in regulation or organization of the solid waste management. • To address the issues related	7 and 10	throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	Project Worker during training, consultation workshops and working in communities or field data collection;	to consultation, under PWMP, these activities will be continued with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities; • Implement GRM for project workers; • Implement, monitor and report LMP (Attachment 1B) CHSP (Attachment 2 of the SIA-SMP) COC on SEA/SH and VAC (Attachment 3B of the SIA-SMP); • Each SIA to assign one E&S coordinator to oversee, coordinate, monitor and report the E&S implementation.		
Component 1.3. Component 1 Coordination and Reporting and Component 2.3 Project Management and Coordination				

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
These subcomponents will support project management, monitoring, learning and coordination across the implementing agenciesfocus on inter-ministerial coordination, progress reporting, and monitoring and evaluation.	• 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.	• Implement, monitor and report LMP (Attachment 1B) CHSP (Attachment 2 of the SIA-SMP) COC on SEA/SH and VAC (Attachment 3B of the SIA-SMP); • Implement SEP including GRM; • Recruit CTA and E&S consultants to assist C1.3 for supervision, capacity/training, monitoring and reporting of implementation of ESF instruments.	ESS1-4, 7 and 10	EPFO PCU and MPWT PMU during project implementation

4.3 E&S Risks and Impacts and Proposed Mitigation Measures of C2

93. Component 2.2 will finance solid waste infrastructure investments including, two transfer stations and composting facilities, KM32 landfill rehabilitation, necessary equipment for waste infrastructure and waste collection-related equipment such as collection vehicles. Component 2.1 will provide TA to VCOMS for development and implementation of regulations and capacity building on waste management planning, financing and cost recover, and development of operation manuals as well as providing supports for improving waste picker's working conditions and action plan and budget for managing legacy environmental and social issues and other supports for solid waste and plastic waste infrastructure and equipment, and management.

94. The E&S risks associated with proposed activities to be implemented in three sites under Component 2.2 are rated to be moderate to high. The E&S risks and impacts associated with the pre-construction and construction are assessed to be overall moderate (except for OHS risk which is rated substantial), temporary and localized while the E&S risks and impacts associated with the operation phases are assessed to be high when taking into account (i) the existing waste at the Km32 Site and associated legacy risks and impacts; and (ii) limited institutional capacity and resources pertaining to waste facilities management. Km32 landfill has been in operation since 2009 and is operated as an unsanitary open dump. Based on an analysis of Google Earth historical images, the total area where waste has been dumped on the 70 ha large VCOMS site is estimated to 47.8 ha. Assuming the same ratio of waste per ha as estimated in the Pre-FS, the total amount of legacy waste on the VCOMS site would be about 533,000 m3. The area where waste has been dumped on the 30 ha VWMC site is estimated to a total of 8.8 ha. Assuming the same waste per ha ratio as for the VCOMS site, the total amount of legacy waste on the VWMC site would be about 95,000 m3. The grand total amount of legacy waste on the entire 100 ha landfill site is thus roughly estimated to 628,000 m3 of waste. Historic and ongoing infiltration of polluted leachate from the legacy waste at the Km32 site could - if not mitigated - potentially pose significant long-term risks to the surface water and regional groundwater resources. Groundwater resources are currently and may in the future be used for domestic water supply and is therefore an important resource for long-term water supply. Seasonal streams and creeks nearby the Km32 site are used for irrigation of the nearby paddy fields and farmlands. During stakeholder consultations carried out during the project preparation, concerns have been raised by the nearby villages on impacts to rice productivity and impacts on human health (skin rash), air pollution and malodor from landfill operations, and occasional landfill fires affecting nearby villages. The project will include support for preparing action plans and budget for managing legacy environmental and social issues so that the historical pollution at the site does not pose a significant risk to health and safety of workers, communities or the environment.

95. The main potential environmental and social risks during the construction phase, the

operational phase, the closure phase and risks and impacts associated with the legacy waste to be addressed and mitigated at the VCOMS Site at the Km32 include the following:

Pre-Construction and Construction phase at three sites:

96. Overall, the E&S risks and impacts associated with the pre-construction and construction are assessed to be moderate (except for OHS risk which is rated substantial), temporary and localized as summarized below:

- Potential land acquisition, impact on ethnic minorities or impact on cultural heritage sites during construction of the new Transfer Station in Naxaythong (including at borrow pits, sand and quarry sites). In case a sanitary zone needs to be established around waste facilities - to be assessed during full ESIA – there could be a possible need for relocation or restrictions on livelihood activities affecting people living or farming on the surrounding land. These risks will be assessed in detail during the full ESIA stage.
- For the Km32 and Km16, both sites are fully owned by VCOMS and there are no marginalized ethnic minorities claiming collective ownership or cultural connection to the landfill site and surrounding areas.
- Dusts and noise generated by construction works and project related traffic affecting construction workers, landfill workers, waste pickers and collectors and nearby residents.
- 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. These risks can be avoided through proper siting of landfill facilities, borrow pits and disposal areas.
- Risks related to labour management, employment and occupational health and safety.
- Health and safety risks for construction workers, landfill workers, waste pickers and collectors and nearby residents and farmers related to construction site hazards such as the movement of heavy equipment, construction dust and noise and malodour from excavating and relocating waste and traffic along the access road.
- The temporary influx of construction workers could affect nearby villages, potentially increasing incidence of substance abuse and gender-based violence and spread of communicable diseases.
- Earthmoving activities may generate sediment-laden runoff at the construction site and at borrow pits.

Operational phase at three sites:

97. Overall, the E&S risks and impacts associated with the operation phases are assessed to be high due to the existing waste at the Km32 Site and associated legacy risks and impacts as provide above; and (ii) weak legal and institutional capacity on waste management. The key E&S risks and impacts are summarized below:

- 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 odour; poor health and safety and sanitation, etc.
- Risks related to labour management, employment and occupational health and safety.
- Pollution of the ambient air due to open burning of waste, dust from handling of waste and daily traffic, malodour from decomposing waste, and emission of landfill gas including greenhouse gasses.
- Community health and safety risks due to exposure of the waste pickers including children among the waste pickers to flies and other vermin attracted by the future incoming waste and to sharps and other hazardous items in the waste.
- Health and safety risks for communities along the hauling route due to accidents involving daily waste truck traffic.
- At the Km32 site:
  - Risk of groundwater pollution from leachate leaking through liner systems in the new landfills cells, the cell for relocated waste or the leachate regulation pond.
  - Pollution of surface water by uncontrolled discharge of leachate or seepage from waste piles due to improper landfill operations impacting on agricultural production, aquatic flora and fauna, and human health.

Legacy waste on the existing VCOMS's Km32 site:

- Historic and on-going infiltration of polluted leachate from the legacy waste posing a significant long-term risk to the important regional groundwater resources.
- Significant long-term risk of contamination of surface water in streams and ditches draining the landfill site by polluted leachate or seepage from the legacy waste affecting the productivity and quality of crops and may also pose a risk to the health of farmers, domestic animals and wildlife in the area nearby Km32 landfill.
- Pollution of the ambient air due to open burning of legacy waste, malodour from decomposing legacy waste affecting landfill workers, waste pickers and nearby residents.

- Health and safety risks of waste pickers and landfill workers from exposure to polluted leachate, and flies and other vermin attracted by the legacy waste.

Closure phase at the existing VCOMS's Km32 site:

- Exposure to waste by people or animals.
- Spread of diseases 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.
- Risk of pollution of surface water by leachate or seepage from waste impacting on agricultural production, aquatic flora and fauna, and human health.
- Risk of groundwater contamination due to failure of the liner and the leachate collection and treatment system.

Cumulative impacts

- Cumulative risks and impacts are primarily related to legacy waste and legacy leachate ponds on the adjacent 30 ha large site as well as the ongoing and proposed waste management activities under a private investor, Vientiane Waste Management Company (VWMC) on the site. The VWMC site shares the same airshed and watershed as the VCOMS site and lies over the same groundwater resources. The potential impacts from the legacy waste and legacy ponds on the VWMC site include discharge of polluted leachate and leakage into groundwater resources. Potential impacts from VWMC's ongoing and future activities include surface water and groundwater pollution from VWMC's waste storage areas or wastewater ponds.

Mitigation Measures

98. The most important environmental and social mitigation measures proposed are summarized below:

- For pre-construction phase, the key mitigation measure is to ensure the preferred design and comprehensive ESIA study and preparation of Site Specific ESMP through meaningful and inclusive consultations. The proposed preferred design of the new landfill cells including composite liner systems combined with proper implementation of the operational mitigation measures including daily cover of the waste, leachate collection and treatment will minimise the risk to groundwater and effectively stop the current pollution of surface water bodies draining from the VCOMS landfill site and prevent future adverse impacts on surface water and agricultural fields.
- For the construction phase, the environmental and social impacts and risks are assessed to be overall moderate (except for OHS risk which is rated substantial), temporary, and localized. These risks will be effectively mitigated by conventional

construction methods, standard mitigation measures and close coordinate between construction contractor and landfill operator.

- The occupational and community health and safety conditions during operation will be improved through proper landfill operations including a complete stop for open burning of waste, daily cover of incoming waste, and reduced littering; and a waste reception area will be established where the waste pickers can segregate recyclables under improved health and safety conditions.
- The legacy waste on the VCOMS site will be regrouped and compacted and provided with a cap designed to minimise infiltration, and to collect landfill gas; and the cap will ensure a range of recreational or productive land uses.
- Upon closure, the design of the final capping of the engineered landfill cells will allow a range of recreational or productive land uses.
- Impacts on the livelihoods of the waste pickers due to capping of the legacy waste is likely insignificant as recyclable items in the legacy waste currently on the landfill site most likely already have been removed by the waste pickers, and during the construction phase, the waste pickers will be provided with access to the incoming waste at the waste reception area.
- Risks of impacts on the waste pickers' livelihoods during the operational phase will likely are insignificant as the waste pickers will have access to segregating the recyclables from the incoming waste at the waste reception area.
- Cumulative impacts related to impacts from the legacy waste on the VWMC site are proposed mitigated under PWMP by installing a low permeable cap on the waste with similar design as proposed for the legacy waste on the VCOMS site. In terms of cumulative impacts arising from VWMC's activities, VWMC has developed an ESIA and EMMP for their current and future activities on the site, which has been approved by MONRE and which include mitigation measures addressing the potential impacts. Considering the implementation of the Km 32 Landfill Project with the preferred design and mitigation measures including capping of all legacy waste and remediation of the ponds on both the VCOMS site and the VWMC site; and the mitigation measures to be implemented by VWM according to their EMMP, the cumulative risks are assessed to be reduced to an acceptable level. In addition, Component 1 under PWMP will establish a coordination mechanism among VCOMS, VWMC, MPWT, MONRE and PONRE to address environmental, social and health and safety issues. This will strengthen the regulatory oversight and improve compliance with regulatory environmental requirements. More details are provided in the standalone Pre-ESIA.

99. A full ESIA to be prepared for Component 2 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 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.

100. All identified impacts/risks for the Km32 site are assessed to be acceptable with the adoption of preferred alternative conceptual design proposed in the Pre-ESIA and implementation of the mitigation measures outlined in the Pre-ESIA.

101. The proposed project activities to be implemented under Component 2, the expected E&S impacts and risks and the proposed mitigation measures and/or ESF instruments to be applied during project implementation are summarized in Table 4-2.

Table 4-2 Summary of the E&S Risks and Impacts and proposed Mitigation Measures for C2

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
Component 2: Improving Municipal Solid Waste Services in Vientiane Capital (US$29.98 M of national IDA).				
i. **Subcomponent 2.1 Municipal Solid Waste Service Planning, Operation, Monitoring, and Cost Recovery in Vientiane Capital**	***Most of the proposed activities will create positive impacts and mitigate E&S risks including the existing waste at the Km32 Site and associated legacy risks and impacts identified above and under C2B. However, there are some E&S risks and impact as summarized below:*** • Lack of inclusive and meaningful consultation during the full ESIA study and development of landfill and transfer operational manuals for 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; • Social risks related TA activities if not properly assessed and consulted with all stakeholders. • Risk of increase in illegal dumping, littering,	• 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; • Ensuring that the full ESIA is carried out in compliance with compliance with the ESMF, SIA-SMP, Pre-ESIA and SEP. • Careful assessment of impacts due to changes in fees or policies through stakeholder consultations.	**ESS1-8, 10**	MPWT PMU, PTI and VCOMS, Consultant firms (DD and Full ESIA study) throughout the project implementation

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	and open burning, as results increase in waste fee collection, can exacerbate impacts on public health and the environment; • OHS risks related to the working conditions, labour disputes transmission of infectious diseases (such as Covid-19) of Project Worker; • Inappropriate behavior by Project Worker during training and consultation workshops	• Include social assessment in the TOR of TA activities. This will also include the assessment on how much of the current waste collection is reliant on informal waste workers and how the value chains related to them may be affected with any new changes in regulation or organization of the solid waste management.		
ii. Subcomponent 2.2 Municipal Solid Waste Service Infrastructure Investments in Vientiane Capital (Km32, Km16 and Naxythong District).	***Overall, the E&S risks and impacts associated with the pre-construction and construction are assessed to be moderate, temporary and localized as summarized below:*** ***(a) Environmental Risks and Impacts:*** • Dusts and noise generated by construction	• Full ESIA and Site Specific ESMPs (SS-ESMPs), as part of project activities under C2A, will be prepared by MWTP PMU with technical assistant from	**ESS1-8, 10**	MPWT PMU, PTI and VCOMS, Construction Supervision Consultant firm, Construction Contractors

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	works and project related traffic affecting construction workers, landfill workers, waste pickers and collectors and nearby residents. • Earthmoving activities may generate sediment-laden runoff at the construction site and at borrow pits. Sediment-laden runoff generated by earthworks affecting nearby surface water bodies. • 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. These risks can be avoided through proper siting of landfill facilities, borrow pits and disposal areas. ***(b) Social risks and impacts:*** • Lack of inclusive and meaningful consultation during the full ESIA study with all concerned stakeholders (esp. vulnerable/poor	a qualified ESIA firm in compliance with the ESMF, SIA-SMP, Pre-ESIA and SEP; • 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. • Background checks and		including VCOMS's contractors Throughout the project construction phase

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	households, women, waste pickers and collectors as well as nearby communities) could result in the risk is regulatory non-compliance, project delays, reputational harm to project stakeholders; • Inadequate Stakeholder Engagement or inadequate management of the grievances redresses mechanism during the construction stage • Potential land acquisition, impact on ethnic minorities or impact on cultural heritage sites during construction of the new Transfer Station in Naxaythong (including at borrow pits, sand and quarry sites). In case a sanitary zone needs to be established around waste facilities - to be assessed during full ESIA – there could be a possible need for relocation or restrictions on livelihood activities affecting people living or farming on the surrounding land. These risks will be assessed in detail during the full ESIA stage; • For the Km32 and Km16, both sites are fully owned by VCOMS and there are no	security training will be conducted for contractor workers to ensure no history of abuse and no incidents on undue use of force regarding local communities. • More details of mitigation measures are provided in a standalone Pre-ESIA and SIA-SMP for all components.		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	marginalized ethnic minorities claiming collective ownership or cultural connection to the landfill site and surrounding areas. • 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; • Risks related to labour management and working conditions, including (i) employment discrimination, (ii) denial of basic labour rights; (iii) unresolved labour disputes, (iv) child labour; (v) accidents and injuries involving heavy equipment; and (vi) injuries and illnesses due to exposure to waste which may contain toxic agents, sharp objects, and pathogens as well as exposure to contaminated soils and dusts at construction site; (vii) Risks related SEA/SH and VAC including the temporary labour influx of construction workers is likely to increase the			

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	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; • Community health and safety related to construction site hazards such as the movement of heavy equipment, construction dust and noise. Nearby residents and farmers working downwind could potentially be exposed to dusts while those along the construction routes may be impacted by the construction traffic. The temporary influx of construction workers could affect nearby villages, potentially increasing incidence of substance abuse and gender-based violence and spread of communicable diseases. Although the landfill areas are outside the UXO danger zone, there may be risk of encountering UXOs at borrow pits. • Damages to the local roads due to increased traffic; • Disruption on recycling activities with risk of			

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	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. • More E&S risks and impacts are provided in the Pre-ESIA for the Km32 and SIA-SMP for all components.			
	Overall, the E&S risks and impacts associated with the operation phases are assessed to be high due to the existing waste at the Km32 Site and associated legacy risks and impacts as provide above; and (ii) weak legal and institutional capacity on waste management. The key E&S risks and impacts are summarized below while more details of risks and impacts of the Km32 are provided in the standalone Pre-ESIA. ***(a) Environmental Risks and Impacts:*** • The operation of the new transfer station in Naxaythong district and at the Km16 may pose operational environmental risks such as	• The operational E&S risks and impacts will be mitigated to be an acceptable level through the implementation of project activities under C2A. • Implement the operational phase mitigation measures outlined in Table 8-3 in the Pre-ESIA for Km32 and SIA-SMP for all components.	ESS1-8, 10	Implemented by VCOMS and monitored by MPWT PMU/DHUP

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	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 odour including air pollution from landfill fire; poor health and safety and sanitation, etc. • Risk of groundwater pollution from leachate leaking through liner systems and legacy waste piles. • Surface water contamination may 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. • Pollution of the ambient air due to open burning of waste, dust from handling of waste and daily traffic, malodour from decomposing waste, and emission of landfill gas including greenhouse gasses and air pollution posing a health hazards to landfill workers, waste-	• Provide opportunities to waste pickers to work at the new waste management facilities at km 32, and at km 16 and Naxaythong sites; • Waste pickers will have access to in-coming waste in Km 32. An on-going role for waste pickers during operations is assured through project design. • The risks of loss/reduction of the existing livelihoods of waste collectors, waste-pickers and other groups like informal recyclers will be assessed as part of the preparation of NPAP and other related		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	pickers and nearby residents. • Risk of uncontrolled site access leading to injury of people or loss of cattle. • Risk of increase in illegal dumping, littering, and open burning exacerbating impacts on public health and the environment. • 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.	activities on the sector, including policy and legal / regulatory support. The assessment of poverty and social impacts as well as related consultation activities will be integrated in the TORs for such TA assignments. • The MPWT PMU will ensure that Social Security (health and life insurance) is provided to all workers according to the Labour Law and the Law on Social Security before the commencement of project activities. • Background checks and security training will be		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	• Contribution to climate change by fugitive emission of greenhouse gases (methane and carbon dioxide) in landfill gas generated by decomposing organic waste. ***(b) Social Risks and Impacts:*** • 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; • 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)	conducted for VCOMS workers to ensure no history of abuse and no incidents on undue use of force regarding local communities. • Peg unit rates paid to waste pickers for recyclables to current market prices with deduction of a reasonable margin to ensure profitability for the appointed on-site buyer. • Updating, implementing, monitoring and reporting of SEP. • Monitoring and strict enforcement of regulation for waste collection companies		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	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; • Air pollution from open burning of waste or landfill fires can pose a health hazards to landfill workers, waste-pickers and nearby residents; • Risk of increase in illegal dumping, littering,	• Awareness raising on environmental impacts of waste dumping and burning • Issue village-level regulations with penalties for illegal dumping.		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	and open burning exacerbating impacts on public health and the environment. • Inadequate Stakeholder Engagement or inadequate management of the grievances redress mechanism.			
	Livelihood impacts Risks of impacts on the waste pickers' livelihoods will likely be insignificant as the waste pickers will have access to segregating the recyclables from the incoming waste at the waste reception area. The previously proposed investments in recycling facilities at the Km 16 and Naxaythong transfer stations have subsequently been dropped and the earlier concern that these investments would cause a reduction in recyclables arriving at the Km 32 landfill site and thus potentially cause a reduction in the income of waste collectors and waste pickers, is therefore no longer expected to materialise. However, the waste pickers have noted a reduction in recyclables due to unsorted waste collected by VCOMS/Small B is being directed to the VWMC RDF plant, whereas pre-	To mitigate any impacts of the operation of the new engineered landfill cells to the livelihood of waste-pickers and seasonal recyclers whose access to the recyclable waste may be reduced, the project will: (a) provide opportunities to waste pickers to work at the new waste management facilities at km 32, and at km 16 and Naxaythong sites; (b) offer waste pickers skills and vocational training on literacy, numeracy, entrepreneurship among others to improve their livelihoods and prevent job	ESS5	VCOMS

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	sorted waste containing less recyclables is delivered to the VCOMS site by private companies. During the consultations, VCOMS responded that they will address this concern so that at least 50% of VCOMS' and Small B's waste trucks are directed to the VCOMS site.	loss; (c) improve their working conditions by upgrading of the existing recycling facility and the waste reception area, providing training in waste handling, hazardous waste and providing PPE. In addition, to address the concern raised by waste pickers that unsorted waste collected by VCOMS/Small B is being directed to the VWMC RDF plant next to the VCOMS site, whereas pre-sorted waste containing less recyclables is delivered to the VCOMS site by private companies, VCOMS will arrange that at least 50% of VCOMS' and Small B's waste trucks are directed to the VCOMS site. The risk of impacts on the livelihoods of waste pickers		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
		and waste collectors is therefore considered minor but it is something that needs to be closely monitored during project implementation.		
	Potential interaction with VWMC's Activities: The concession and KM32 landfill share the same airshed and receiving water body because of their proximity. VWMC activities that may interact with PWMP project area (landfill): • Potential air (dust) and water pollution (construction runoff) affecting PWMP project area from VWMC's waste sorting plant, renewable energy factory, biochemical fertilizer plant. • Potential air pollution (e.g. PM, CO, NOx) affecting PWMP project area from VWMC's renewable energy factor and bio-chemical fertilizer plant. • Potential water pollution of receiving water body and groundwater from VWMC's wastewater reservoir and waste storage.	PWMP will provide TA and finance for the Ministry of Natural resources and Environment (MONRE) to strengthen its capacity for monitoring and enforcing environmental regulations, which will also help the government to better monitor and enforce VWMC's EMMP. The PWMP will: • Develop (i) standard procedures for monitoring and evaluation of investment projects'	ESS1-4, 6,7,8, 10	Implemented by VCOMS and monitored by MONRE and MPWT PMU/DHUP

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	• Trucks transporting waste to the VWMC concession area and to the KM32 landfill will use the same public access road that connects to National Road 13. • VWMC's renewable energy factory operates at high temperatures which introduces risk of fire that if it occurs can potentially spread to the landfill, or produce air pollution that affects the PWMP project area. • VWMC's waste sorting plant, renewable energy factory, biochemical fertilizer plant may be perceived as part of landfill infrastructure. • Transport of waste to VWMC may be perceived as transport of waste to the landfill. • Incoming waste to the landfill that is used for sorting by wastepickers will decrease initially when VWMC starts offtaking waste for its project, but will later increase when PMWP improves waste collection. • Major fire or risk of major fire outbreak on either the VCOMS site or the VWMC site.	compliance with Lao PDR's environmental regulations; (ii) a compliance monitoring system for tracking environmental performance of investment projects; (iii) regulations for penalties for non-compliance with environmental regulations. • Undertake compliance monitoring with a focus on air and water pollution for improving environmental compliance in investment projects including VWMC. Resources are provided for MONRE to		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
		undertake regular surface and groundwater monitoring around the landfill. **ESCP** includes that government is committed to diligently monitor and enforce the environmental and social risk management obligations in the VWMC Concession's ESIA and ESMP. **Pre-ESIA includes risks and appropriate management measures**. Use Cumulative Impact Assessment (CIA) to identify risks because of this interaction and include appropriate risk management measures. The environmental		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
		management plan under the Pre-ESIA includes development of emergency action plans and both VCOMS site and VWMC site will have fire detection and fighting equipment. PAD includes a coordination mechanism for the entire site. The mechanism will facilitate coordination on key issues that may arise related to E&S compliance, OHS, CHS, waste pickers, and response protocols for emergencies. The Ministry of Natural Resources and Environment (MONRE) will lead the coordination among MONRE, VWMC, VCOMS, Ministry of Public Works and Transport (MPWT) and the provincial		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
		office of natural resources and environment and other related stakeholders. Coordination will include regular meetings (e.g. monthly or quarterly) of MONRE and stakeholders. **SEP includes (i) GRM** to include guidance on differentiating grievances originating from PWMP and VWMC, and how to deal with these.; (ii) Awareness-raising in local communities and through social media to help differentiate the activities of VCOMs and VWMC.		

Component/Key Activities	Environmental and Social Risks	Environmental and Social Instruments and Measures	WB ESS	Responsibility / Implementation Stage
	The key E&S risks and negative impacts during closure phase[33] are as follows: • 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.	• These E&S risks will be mitigated through the implementation of the mitigation measures provided in the Table 8-4 in the Pre-ESIA.	ESS1-4, 6,7,8, 10	Implemented by VCOMS and monitored by MPWT PMU/DHUP

[33] 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).

4.4 CLIMATE CHANGE RISKS, ADAPTATION AND MITIGATION

102. **Climate Change.** The project was screened using the World Bank's Climate and Disaster Risk Screening Tool and risk was classified as 'Moderate'. The PWMP supports the Government's climate policy objectives as articulated in the Nationally Determined Contributions (NDCs). For climate change adaptation, the country's NDC objective is to increase the resilience of urban development and infrastructure to climate change by 2030. The project supports this objective by reducing the vulnerability of solid waste facilities to climate risks through climate-resilient design. Improved waste collection resulting from program activities will also enhance urban flood drainage capacity in project locations. For climate change mitigation, the Government has set a conditional GHG mitigation target of 40kt CO2e on average per year between 2030 and 2030 in its updated NDC (2021). Activities financed by this project contribute directly to reducing greenhouse gas (GHG) emission from the solid waste sector. According to the World Bank Guidance Note on Social Value of Carbon (2017), the lower bound estimate of global social cost of carbon is valued between US$42.0 in 2022, the higher bound value US$84.0.

103. **GHG emissions.** An analysis of GHG emissions was undertaken based on expected outcomes of the project including municipal solid waste collection service improvement, reduced open burning of waste, increased waste treatment including recycling and composting, and rehabilitation/construction of new sanitary landfill cells. Without project interventions, municipal solid waste volume is expected to increase due to population growth, urbanization and economic development. This would impact the amount of waste processed through intermediate treatment, landfilling, the amount of fuel used for transport and there will be no mitigation effect from the introduction of sanitary landfill. Total net GHG emission is estimated to be -2,719,920 tCO2e, a net reduction over the evaluation period (40 years). The average annual net GHG emissions are -67,998 tCO2e. The emission reductions are expected to come from optimizing transport routes for waste collection, waste separation to remove organic waste from the waste stream, and landfill gas collection.

4.5 GENDER

104. **The project will contribute to narrowing the gap between men and women in terms of access to jobs in the SWM sector.** Significantly less females are employed in the Lao PDR's formal waste sector. According to a recent assessment of gender dynamics in the waste sector in selected cities in Lao PDR, females comprise about 11 percent.[34] This trend is attributed, in part, to lower levels of formal education and training among females, and

[34] Civitas, 2022. Gender Assessment Report for the Environmental and Waste Management Project. World Bank.

perceptions that waste work is not suitable for females. Females involved in informal waste picking face an income gap, earning approximately 27 percent less than their male counterparts. This income difference is influenced, in part, by females dedicating fewer hours to the job due to household and childcare responsibilities. Through the project, new job opportunities for informal waste workers will be developed at the KM16 and Naxaythong waste facilities under subcomponent 2B. To ensure that female workers have access to these new jobs, the project will: promote female waste workers participation at the waste facilities through targeted campaigns; develop policy for equal pay rates for men and women at the waste facilities; provide targeted training to be determined during implementation and machine operation training for upskilling female waste workers; and design flexible working hours at the waste management facilities.

105. **To improve the working environment for female workers, the project will**: develop and implement human resource policies for appropriate social security benefits to attract female workers, and provide training to the facility managers at KM16, KM32 and Naxaythong on codes of conduct regarding sexual harassment, and Protection against Sexual Exploitation; provide separate bathroom facilities at the waste management facilities for males and females; and improve workplace safety for women and men through providing personal protective equipment (PPE) and safety trainings as well as in improving security standards and protocols on waste sites and within the waste facilities.

5 E&S MANAGEMENT PROCEDURES

106. This ESMF is to manage potential adverse environmental and social impacts by establishing guidance documents that will inform EPFO PCU and MPWT PMU of the agreed sets of ESF instruments and procedures to be implemented by the PWMP. The ESF instruments and E&S management procedures are broken down into E&S procedure for C1 (Section 5.1) and C2 (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 and C2).

107. Contingent Emergency Response Component (CERC) Manual. The For the CERC, an addendum to the ESMF or a specific CERC-ESMF will be prepared specifically for the CERC and disclosed within 6 months after the activation of the CERC Manual and must be approved by the Association.

5.1 E&S MANAGEMENT PROCEDURES FOR C1

5.1.1 ESF Instruments to be implemented by C1

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

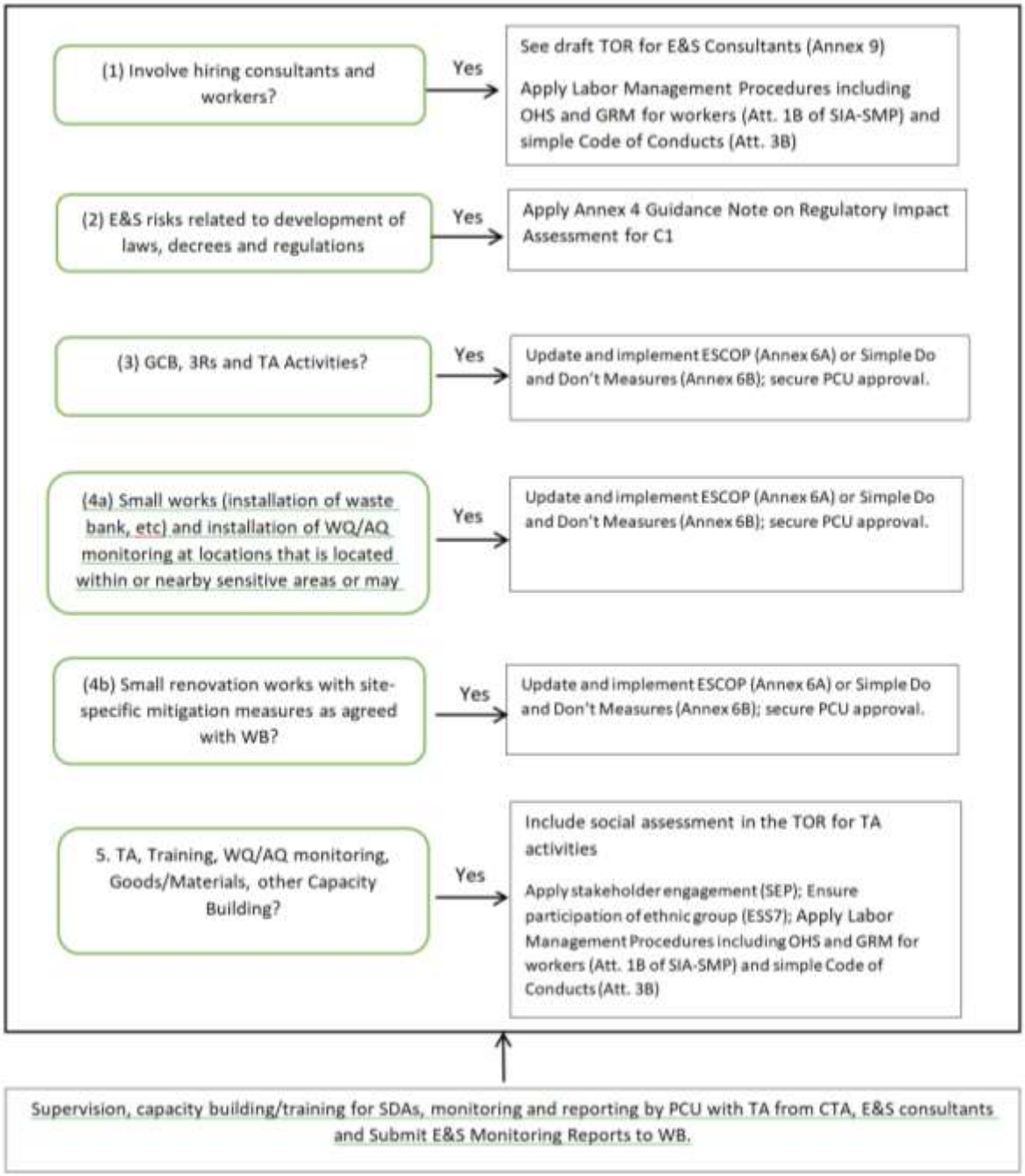
Table 5-1: Overview of ES Management Measures/ Instruments for C1

Component	ES Management Instrument	Objective	Timing
C1	1. Annex 3 Guidance Note on Regulatory Impact Assessment for C1	To improve the quality of political and administrative decision-making by determining the risks, costs and benefits of the proposed legislation, and identifying who will be affected by the proposed legislation, while at the same time addressing the need for openness, public involvement and accountability. A regulatory impact assessment is intended to ensure that any proposed legislation: • Is necessary • Is aimed at the right targets • Is in proportion to the problem or issue being addressed • Achieves its objectives and avoids unintended consequences.	Throughout the Project implementation
C1 (where applicable)	Simple Environment	Ensure that E&S risks and impacts associated with the TAs related to 3R, NPAPs, and improving	Throughout the Project

Component	ES Management Instrument	Objective	Timing
	al and Social Code of Practices (ESCOP) for small civil works (Annex 5A)	compliance of investment projects are identified, assessed and prevented or minimized to an acceptable level.	implementation prior to approval of small civil works implementation
C1	Annex 5B Simple Do and Don't Measures for 3R and GCB activities under C1	Ensuring good practice of housekeeping involves proper storage, use, clean-up, and disposal of the various materials used during construction for human and environmental safety for minor civil works under GCR/3B will only related to waste bank activities (construction and operation of small plastic waste, paper waste, and recyclable wastes storage on public land (school, temple, market, etc.).	Throughout the Project implementation prior to approval of small civil works implementation
C1	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)	Throughout the Project implementation
C1	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	Throughout the project implementation
C1	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	Throughout the project implementation

Component	ES Management Instrument	Objective	Timing
		including Covid-19 and SEA/SH	

Figure 5-1 E&S Management Procedure for C1



5.1.2 Simple ESCOP and Simple Do and Don't Measures for C1

A simple ESCOP (Annex 5A):

109. The scope of a generic Environment and Social Code of Practices (ESCOP in Annex 5A) will be applied for TAs for 3R, NPAPs, and improving environmental compliance of small investment activities to be implemented under C1 which will be confirmed during the Project implementation.

110. The generic ESCOP in Annex 5A comprises an Environment Code of Practice (ECOP) (Part A5.1) and the Social Code of Conduct (SCOC) (Part A5.2). The ESCOP will be included in all bidding and contract documents for works contract for small size construction and/or rehabilitation of works related to offices and/or facilities to be implemented under the C1. The ECOP describes a general and key specific requirement for environmental management and monitoring of physical construction and renovation civil works while scope of SCOC describing obligations of contractor and workers to prevent social impacts during implementation and work contract. More details are in Annex 5A.

Simple Do and Don't Measures (Annex 5B)

111. The simple good practice of housekeeping involves proper storage, use, clean-up, and disposal of the various materials used during construction for human and environmental safety for minor civil works under GCR/3B will only related to waste bank activities (construction and operation of small plastic waste, paper waste, and recyclable wastes storage on public land (school, temple, market, etc.).

5.2 E&S MANAGEMENT PROCEDURE FOR C2

112. The ESF instruments applied for C2 are presented in Table 5-2 below while E&S management procedure is illustrated in Figure 5-2 below.

113. 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 have been established to guide the site selection to avoid/ minimize impacts on E&S along with other technical considerations (Annex 2). Criteria have been included in this annex for selection of any new construction materials site.

114. Site Specific Environmental and Social Impact Assessment (ESIA): 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 rehabilitations are still to be further updated/revised during the Detailed Design. A standalone Preliminary Environmental and Social Impact Assessment (Pre-ESIA) for the 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 recommendations 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.

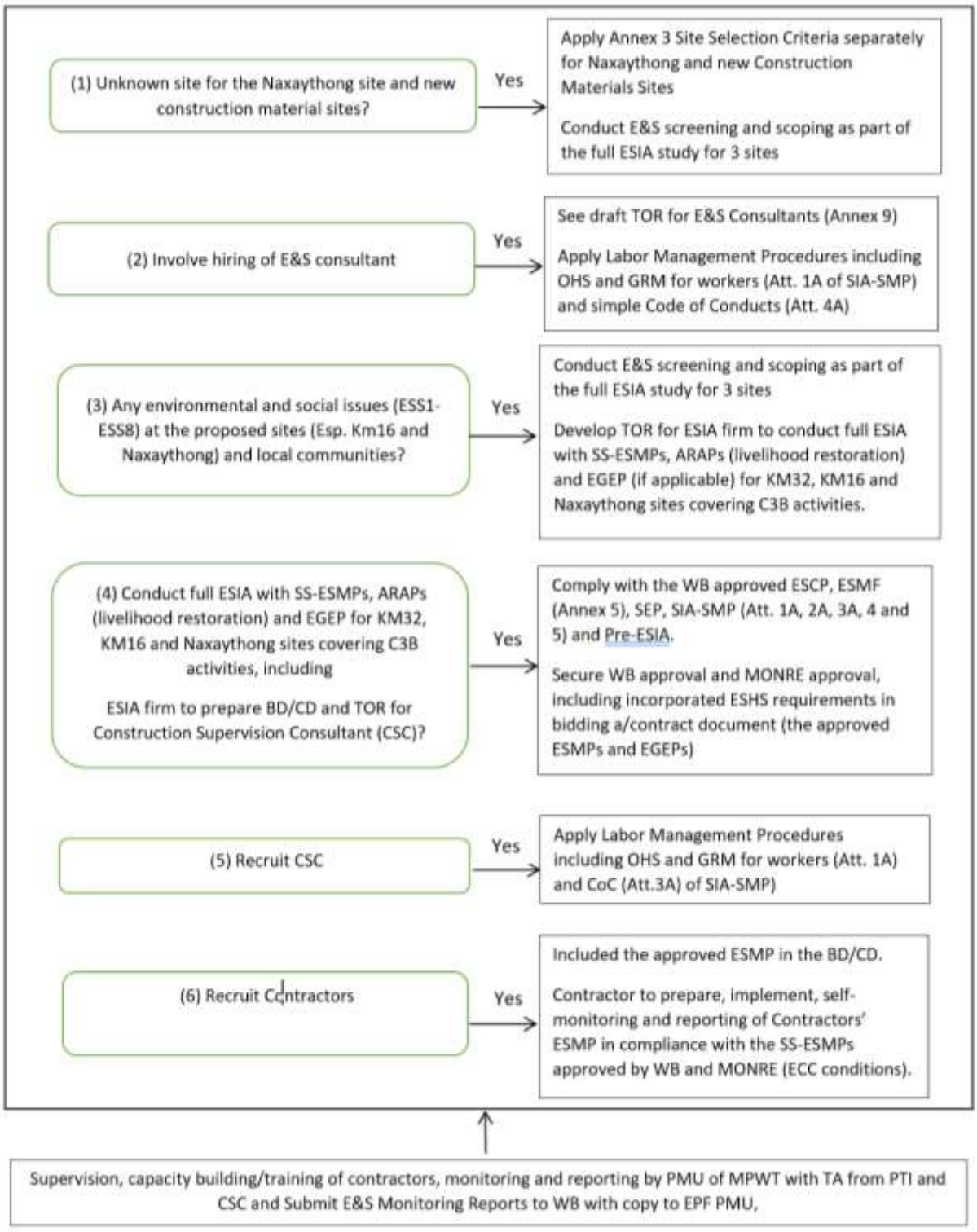
115. The TOR for ESIA firm to conduct a full the ESIA and SS-ESMP that cover three sites (Km32, Km16 and Naxaythong) will be prepared by E&S consultants to be hired by MPWT PMU and approved by WB before consulting firm hiring.

Table 5-2: Overview of ESF Instruments for C2

Activity	ESF Instrument	Objective and Application
During Project implementation: Selection of Naxaythong transfer station, and new construction materials sites	Site Selection Criteria in Site including E&S criteria for Naxaythong and new construction material site (if any) (Annex 2)	• Prevent significant environmental and social risks. • Given that the location of Km32 and Km16 has been confirmed, this Annex will only apply for Naxaythong site and any new construction material sources.
During Project implementation: Detailed Design phase	Guideline for Preparation of Site-Specific Environmental and Social Impact Assessment (ESIA) and Site Specific Environmental and Social Management Plan (SS-ESMP) including screening and scoping (Annex 4)	• Ensure that E&S risks and impacts associated with Project investments in waste management facilities are identified, assessed and prevented or minimized to an acceptable level
Throughout the Project implementation	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	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

Activity	ESF Instrument	Objective and Application
		local communities which can have risks for infectious diseases including Covid-19 and SEA/SH
Throughout the Project implementation	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	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	Ethnic Group Engagement Framework (EGEF) - (SIA-SMP Attachment 5)	• Provides specific guidance on the consultation and engagement process and scope of an Ethnic Group Engagement Plan (EGEP) including screening process.

Figure 5-2 E&S Management of C2



6 ESMF IMPLEMENTATION ARRANGEMENTS AND CAPACITY BUILDING

6.1 PROJECT IMPLEMENTING AGENCIES

116. 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.

117. The MONRE is the lead agency for Components 1, the MPWT is the lead agency for Component 2. Project activities are implemented by several agencies under the MONRE, MPWT, and the VCOMS. A summary of agencies involved in the PWMP is presented in Table 6-1. A Project Operational Manual—containing detailed information on the project implementation arrangements and processes, including coordination mechanisms, project management, M&E, reporting arrangements, procurement, financial management (FM), disbursements, and the environmental and social framework (ESF) has been developed and will help to guide the agencies for implementation.

Table 6-1: Agency Implementation of project activities

Institution	Project-related Mandate
EPF	The EPF will host a PCU that will coordinate the implementation of the overall PWMP in collaboration with MONRE and MPWT, carry out fiduciary management for components 1, and collate project progress reports. The PCU will include: a chief technical advisor; financial management specialists; monitoring and evaluation specialists; environmental and social safeguard specialists; a gender focal point to oversee the gender activities and support reporting on gender-relevant indicators; a project coordinator; and subproject coordinators. The EPF will also be responsible for the implementation of environmental and social risk management activities relating to Component 1, and it will be responsible for updating the POM in collaboration with relevant departments of MONRE and MPWT and following World Bank approval.
DOE-MONRE	MONRE's DOE will lead waste management legislation, and plastic waste management activities under Subcomponent 1.2.
DNEI-MONRE	MONRE's DNEI will lead the establishment and deployment of the pollution compliance monitoring system under Subcomponent 1.1 and act as a focal point for landfill pollution monitoring as part of the national air and water quality monitoring system supported under Subcomponent 1.1.
NRERI-MONRE	MONRE's NRERI will lead air and water pollution monitoring and database management activities under Subcomponent 1.1.
DWR-MONRE	MONRE's DWR will lead activities related to groundwater monitoring and development of policies for water quality monitoring and management under Subcomponent 1.1.

Institution	Project-related Mandate
DHUP-MPWT	MPWT's DHUP will lead the implementation of Component 2 and house the PMU for this component. DHUP will oversee the construction of waste-related facilities and will hand the facilities over to VCOMS upon completion and after provision of training to VCOMS staff. DHUP will also provide close support to VCOMS on capacity building and implementation of ESF-related activities under Component 2.
PTI-MPWT	MPWT's PTI will support the DHUP PMU to perform ESF- related activities required for Component 2.
DPF-MPWT	Department of Planning and Finance will support the PMU's procurement and FM responsibilities for Component 2.
Vientiane Capital DPWT	VC's DPWT will support the supervision of construction of waste management facilities under Subcomponent 2B.
VCOMS	VCOMS will implement waste management planning, operation, monitoring, waste service delivery, and cost recovery activities as well as the support to waste pickers under Subcomponent 2A. MPWT will hire a waste management specialist to support VCOMS in the implementation of these project activities.

118. **National Project Steering Committee (NPSC).** The NPSC will be chaired by the Minister of MPWT and comprise the VC vice governor, the Director General (DG) of the DHUP, and the Executive Director of EPF. This committee will meet regularly to discuss the project's implementation progress and resolve challenges.

119. **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.

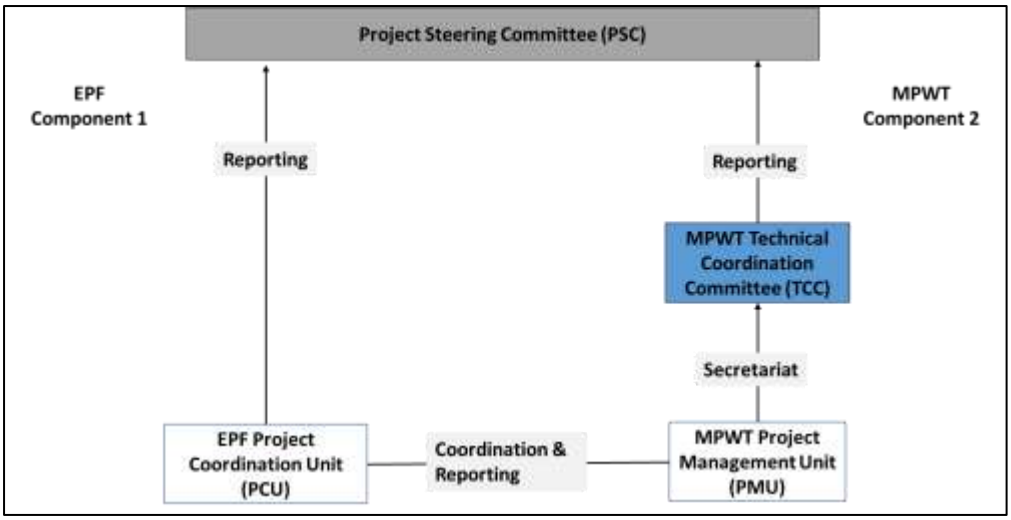
120. **EPF Project Coordinating Unit (PCU).** A PCU will be established at the EPF to support project management and oversee the implementation of Components 1. The PCU is proposed to include: a chief technical advisor (CTA); FM team; M&E team; E&S safeguard team; a gender focal point to oversee the gender activities and support reporting on gender-relevant indicators; a project coordinator; and subproject coordinators.

121. **MPWT will establish a Technical Coordination Committee (TCC) for Component 2.** The TCC will be responsible for overseeing procurement, financial, environmental, and social management, preparing annual work plans and budgets, monitoring and evaluating activities, consolidating results and communications with the World Bank, managing project accounts, ensuring quality control, and conducting periodic audits. It will be convened and chaired by the MPWT vice minister and include the DGs of MPWT's DPF, DHUP, VC Department of Public Works and Transport, and PTI, and the head of VCOMS. The PMU will serve as the secretariat of the TCC and will include technical staff from DHUP, DPF, and PTI. A gender focal point will be assigned to oversee the gender activities and support reporting on gender-relevant indicators.

122. **Environmental and Social Monitoring Coordination Committee (ESMCC)** will be established and chaired by DNEI to coordinate the environmental and social risk monitoring

of waste facilities located at KM32 (including the RDF concession). ESMCC will have responsibilities for the provision of advice, information, and data to NPSC, PCU, PSC, PCC and PMU of the PWMP. Members of the ESMCC include: NRERI, DWR, PTRI, VCOMS, DPWT, and the Vientiane Waste Management Company.

Figure 6-1 Proposed Institutional Arrangements



6.2 CIVIL WORKS

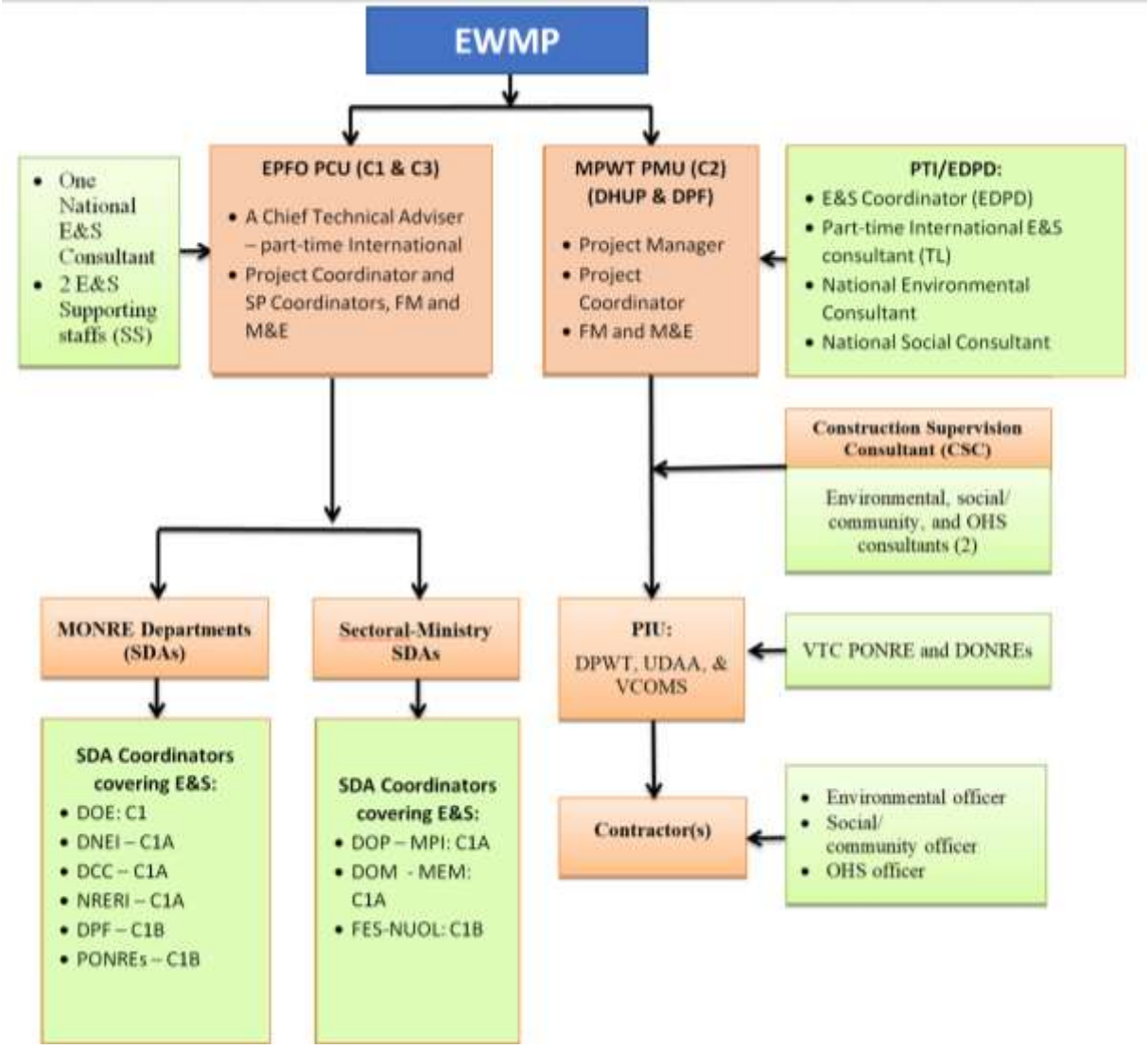
123. **Civil works for landfill rehabilitation at the KM32 landfill and development of waste management facilities at the Naxaythong and KM16 sites will be done under Component 2B and will be overseen by the MPWT**. The MPWT will hire a construction firm to undertake the civil works, a supervision firm to oversee construction works, and the Vientiane Capital Department of Public Works and Transport (DPWT) will support the supervision firm in supervising the construction firm. Manuals for operation and maintenance of the landfill and waste management facilities will be developed. After the civil works have been completed, equipment for the waste management facilities procured, and training of VCOMS staff on operation and maintenance of the landfill and waste facilities undertaken, the facilities will be handed over to the Vientiane Mayor's Office[35], with a legal document confirming transfer of the assets. Even after the facilities are handed over Mayor's Office, the MPWT and DPWT will continue to provide capacity support and training for operation and maintenance of the facilities.

[35] VCOMS is a department under the Vientiane Mayor's Office.

6.3 ESMF Implementation Arrangements

124. The ESMF implementation arrangements are broken down into MPWT PMU and EPFO PCU. The MPWT PMU will be responsible for planning, supervision, monitoring and reporting of ESMF implementation for the C2 while EPFO PCU will be responsible planning, supervision, monitoring and reporting of ESMF implementation for the C1 (See Figure 6-3) and the details of roles and responsibilities are provided in Section 6.3.1 (C1) and 6.3.2 (C2) below.

Figure 6-2 ESMF Institutional Arrangements



6.3.1 ESMF Implementation Arrangement for C1

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

for C1.

126. The EPFO 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 the TA for 3R, NPAPs, and improving environmental compliance of investment projects and activities. At subproject level, SDAs are responsible for planning and implementation of E&S activities including the implementation and management of the GRM. A user-friendly project GRM system/log of the C1, to track how many and what type complaints received, responded to, investigated, referred, resolved, and pending, will be developed, maintained and reported by EPFO PCU in a consistent manner.

127. **E&S Personnel and Consultants:** The EPFO-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 EPFO 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; 3R and GCB activities. The two E&S full time consultant will also assist EPFO PCU in subversion, monitoring and reporting of 3R and GCB implementation activities. The hiring of the E&S consultants will be completed within 3 months after Project effectiveness.

128. ***E&S clearance:*** The EPFO 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 GCB and 3R activities.

a) Subproject Delivery Agencies (SDAs) of Sectoral Ministries

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

130. All SDAs of Sectoral Ministries will submit quarterly monitoring report of ES implementation to the EPFO PCU.

b) Implementation of 3R, NPAPs, and TAs

131. Given that activities and locations of these activities will be identified during Project implementation, the E&S screening and guidelines are provided to facilitate effective and timely planning, implementation, and monitoring the implementation of the ESF instruments to be applied to Project activities.

132. Key responsibilities of the TA related to these programs are as follows:

- Preparing the ESCOP or Do and Don't Measures (including LMP, Code of Conduct, SEP, GRM and EGEP as needed) and submitting it to the EPFO PCU for review and approval.

- Ensuring the approved ESCOP and or Dos and Don'ts 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 Do and Don't Measures has been approved by the PCU EPFO, WB review and approval on ESCOP will be required for the first year of implementation. WB approval on ESCOP for subsequent years will be decided based on the first year implementation experiences. WB approval on ESCOP or Do's and Don'ts is not required.

133. TA for 3R, NPAPs, and improving compliance of investment projects will prepare the following reports:

- **Quarterly Reports:** The Consultants will prepare a comprehensive quarterly report summarizing all activities to be implemented under the TAs, 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 EPFO PCU because of delays in the subproject implementation or the occurrence of agreement difficulties. The quarterly report will also summarize the performance of the Project activities and staffs performance 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.
- Each TA related to 3R, NPAPs, and improving environmental compliance of investment projects will also ensure the immediate reporting to the EPFO 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

134. Reports of the circumstances of any significant accident occurring during the GCB and 3R activity implementation will be immediately informed to the EPFO PCU for further report to the WB within 48 hours.

6.3.2 ESMF Implementation Arrangement for C2

135. The Environment and Disaster Prevention Division of the Public Works and Transport Institute (EDPD/PTI) as an E&S coordinator will work in close coordination with and provide technical support to the PMU of MPWT and VCOMS who will be actually planning and implementing the Project on the ground, including environmental and social instruments. EDPD/PTI will be tasked with overall capacity building/training as well as supervision, monitoring and reporting of the implementation of E&S measures, SEP and GRM including ensuring that E&S requirements are mainstreamed in maintenance planning, design and pre-construction works including bidding and contracting documents (BD/CD).

136. **E&S Personnel and Consultants:** The MPWT-PMU will hire one International E&S Consultant as E&S Team Leader (part-time) and one national environmental consultant (with qualifications/expertise in environmental management, ESHS in solid waste management) and one national social consultant (with qualifications/expertise in social/resettlement, livelihood restoration, stakeholder engagement and GRM) to assist MPWT-PMU and PTI in planning, supervision, monitoring and reporting of ESMF implementation including capacity building to E&S focal point (PTI), PIU and contractors. Both national environmental and social consultants will work full times during first year of construction and part-time for year 2 and 3 during the construction phase. During operation phase, PIU (Vientiane Capital DPWT) and VCOMS will be responsible for implementation of SS-ESMP for operational phase.

137. **Ministry of Natural Resources and Environment (MONRE):** Department of Environment **(**DOE) is responsible for review and approval of the Environment and Social Impact Assessment (ESIA) report and Site Specific Environmental and Social Management and Monitoring Plans (SS-ESMMPs) including issuance of Environmental Compliance Certificate (ECC) while Department of Pollution Control and Monitoring is responsible for compliance monitoring and inspection of implementation of the SS-ESMMPs.

138. During the detailed design stage, MPWT PMU will recruit a qualified ESIA firm to carry out and prepare a full ESIA with Site-Specific Environmental and Social Management Plan (SS-ESMP), 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.

139. At subproject level, PIU (Vientiane Capital DPWT and VCOMS) is responsible for planning and implementation of E&S activities including the implementation and management of the GRM. The VCOMS will assign E&S focal persons to be responsible for compliance with environment and social standards of the Project activities. Vientiane Department of Natural Resources and Environment (VTE DONRE) will be responsible for compliance monitoring and inspection of implementation of the SS-ESMMPs at the sub-project level.

140. During the construction phase, MPWT PMU will also recruit Construction Supervision

Consultant (CSC), which will include at least one environmental specialist; one social and community specialist; and one OHS specialist for day-to-day supervision of Contractor performance and implementation support to EDPD/PTI during the construction of C2 including ensuring full compliance with the ESS measures as required by the WB and GOL.

141. More details on the responsibility of the CSC and contractors including their staffs and consultants are provided in the Pre-ESIA.

142. . A user-friendly project GRM system/log of the C2, to track how many and what type complaints received, responded to, investigated, referred, resolved, and pending, will be developed, maintained and reported by MPWT PMU in a consistent manner.

6.4 CAPACITY ASSESSMENT AND NEEDS

143. 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 MONRE and MPWT agencies including DOE, DNEI, NRERI, PTI, DHUP, VCOMS, Small B, and Xaythany district hospital. The PONRE of VTE capital postponed its interview but provided written responses to the consultant team.

144. 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 2 and the TA support for project management under Component 3. Among the key agencies involved in ESMF implementation, EDPD/PTI and EPFO are the agencies with knowledge and experience on the new WB's ESF implementation. However, they have limited staffs to oversee the implementation of ESF instrument for the Project.

Table 6-1: Institutional Capacity Assessment and Needs in Implementing E&S Instruments

Department	Existing Capacity on the WB ESF	Capacity Needs

Department	Existing Capacity on the WB ESF	Capacity Needs
1) MONRE - DOE: C1	• A total of 91 staff (41 females)/ 37 staff with environmental and social backgrounds and/or experience on environmental and social assessment; community development; resettlement, livelihood restoration, and stakeholder engagement). • 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 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.	• 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. • A project coordinator covering E&S aspects will be assigned.
2) MONRE – DNEI: C1.1	• 65 staff (23 females)/26 staff with environmental and social backgrounds and/or experience (community development, resettlement, livelihood restoration, and stakeholder engagement). 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	• 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. • A project coordinator covering E&S aspects will be assigned.

Department	Existing Capacity on the WB ESF	Capacity Needs
	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 ESF is limited: few staff involved in the implementation of the ESF during the LENS	
3) MONRE-NRERI: C1.1	• 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. • A project coordinator covering E&S aspects will be assigned.
4) MPWT - DHUP: C2	• 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

Department	Existing Capacity on the WB ESF	Capacity Needs
		instruments to be implemented under sub-components.
5) PTI: ESMF Planning, supervision, monitoring and report of safeguard activities for C2	Total 67 staffs (22 females), 5 Hmong (1 female). PTI has recently been restructured or combined from two previous institutes. 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.	• One E&S focal coordinator (government staffs) • Training on the implementation of the final ESF instruments focusing on 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 environmental consultant and one national social 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	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	• Basic understanding of the ESMF and the underlying environmental and social standards. • Day-to-day implementation, monitoring and reporting of the ESMP. • Capacity related to RAP and livelihood restoration. • Project Monitoring and Evaluation.

Department	Existing Capacity on the WB ESF	Capacity Needs
	occupation health and safety inductions are provided to its staff.	
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. • Recruitment of key E&S experts. • 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 and 11 health centers (souksala) with service coverage of 104 villages (217.000 people).	• A total of 48 staff (2 females in the management position)/2 professors for district hospital. • Performs internal specific 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,	Under support from the WHO, Xaythany district hospital improved its waste management 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

Department	Existing Capacity on the WB ESF	Capacity Needs
	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.	of waste is conducted on quarterly. • They need more training if there is a support from the PWMP. • Basic understanding of the ESMF and the underlying environmental and social standards. • Occupational Health and Safety for handling of sharp and infectious waste.

145. On-the job training on the PWMP 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 EPFO, 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 EPFO 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 EPFO 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;

146. The E&S trainings will be provided to the assigned project coordinators and E&S focal points of SDAs, EPFO PCU and MPWT PMU, DPWT and VCOMS to ensure that the most relevant agencies have qualified ES staffs and capacity to implement ESF instruments. Table 6-3 below summarizes the proposed trainings and workshops for the PWMP key personnel and other stakeholders needed to strengthen capacity.

Table 6-2 Proposed E&S Trainings and Workshops

No.	Trainings and Workshops	Target Participants
1	Introduction to World Bank ESF ESSs	Key personals, project coordinators and E&S focal points of EPFO PCU, MPWT PMU, DPWT, VCOMS, SDAs and financed GCB and 3R activities
2	The overview and key points of ESF instruments (ESCP, ESMF, SIA-SMPs, Pre-ESIA and SEP)	Key personals, project coordinators and E&S focal points of EPFO PCU, MPWT PMU, DPWT, VCOMS, SDAs; GCB and 3R activities
3	The implementation, monitoring and reporting of ESMP, EGEP and SEP, GRM for C1	Key personals, project coordinators and E&S focal points of EPFO PCU, SDAs and financed 3R and GCB activities
4	The implementation, monitoring and reporting of ESMP, ARAP/RAP, EGEP and SEP, GRM for C2	Project coordinators and E&S focal points of MPWT PMU, DPWT, VCOMS, CSC and contractors
5	The implementation, monitoring and reporting of CESMP	Project coordinators and E&S focal points of MPWT PMU, DPWT, VCOMS, CSC and contractors

7 CONSULTATION AND STAKEHOLDER ENGAGEMENT

147. 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.

148. 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.

149. For C1, EPFO PCU will ensure that MONRE Departments will implement activities with more extensive consultation following SEP procedures that are being prepared and to be applied to all project activities and components;

150. For C2, 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).

151. 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, private sector and disadvantage or vulnerable groups (Please see description of vulnerable groups on Section 4.2, No. 35 of the SEP and Attachment 4, Section A4.3.8 of the RPF of the SIA-SMP.

7.1 CONSULTATIONS DURING PROJECT PREPARATION

152. 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 PWMP 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 PWMP as well as their suggestions and recommendations.

153. 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.

154. Focused Group Discussion (FGD) was carried out on 11 August 2022 by the EPFO consultants together with technical staffs from EPFO, NRERI and PTI in 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 (registered waste pickers) are Khmu. There were representatives from village authorities, local residents, informal waste pickers[36], and registered waste pickers at the Km32. The team were divided into two teams and carried out the FGD at the three locations and during FGD the participants were divided into small group of 8-10 participants. The summary of FGD is summarized as follows:

- As per information provided by village authority, about 195HHs with 1800 people including 482 females (all are Lao Tai) in Naphasouk village and 90% of 195 households have at least 1-2 members working as informal, irregular/seasonal waste pickers to supplement their livelihoods.;
- There are 264 registered waste pickers[37] (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. Nineteen are under 18 years old. Five live in non-permanent settlement area nearby. Most of the waste pickers are local residents living in the nearby villages or in other villages in Xaythany District and other districts in Vientiane Capital and the remainders are from other provinces including Champasak, Khamuane, Luang Prabang, Oudomxay.

[36] Informal waste pickers are ggeneral villagers who are seasonal waste pickers from surrounding or nearby villages but not registered with VCOMs

[37] The registered waste pickers are those individuals whose names are registered with VCOMs. However, individuals from nearby villages are considered unregistered waste pickers if they come only to collect recyclable waste materials on a seasonal basis and they also have other sources of income.

- 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.
- Their Income from selling waste is 500,000-1,500,000 kip per household per week (300 kip/kg); some of them work both at daytime and night-time at the landfill. They often find valuable materials (gold, jewellery, clothes) and money with values ranging from 100,000 kip to 10 million kip. If they don't have waste to pick and sell, it will significantly affect their income and livelihoods.
- 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, ;
- 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.

155. 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).

156. The draft ESF documents (ESCP, SEP, ESMF, SIA-SMP, and Pre-ESIA) were disclosed on the EPFO website on 29 November 2022 (https://laoepf.org.la/en/esf-documents-for-PWMP/) and revised draft on 23 December 2022 https://laoepf.org.la/en/esf-documents-for-PWMP-2/). A full-day public consultation workshop at the national level was held on 20 December 2022) with a total of 103 participants (39 females) attended and participated. The consultation was organized in two modes (face-to-face and virtual formats). The morning session was in Lao language for relevant government organizations from all levels (district and provincial offices, and ministries), community representatives, and village chiefs in the project areas), private sectors (waste management operator, waste collection companies) and academia (national university, and private schools). The afternoon session was conducted in English and attended by representatives from international organizations and social organizations (NGOs, CSOs, donors). Summary of the results of the consultation workshop are as follows:

- All comments were related to Component 2 on the investment of the waste management facility and Km32 landfill project. Discussion were on the current solid waste management operation practices including waste collection and transfer, infectious waste disposal and maintenance work by VCOMS, contracted operator, and waste collection companies. The wastewater discharge, emission, odor, and vectors were also raised by Napahasouk village chief.
- Raised the issue of the waste drop off and leachate leaking from the waste transferring truck along the road (a 100m road connecting between the '450 Year' ring road and the access road to a waste transfer station);
- Irregular waste collection from Nahai village resulted in waste being scavenged by domestic animals;
- The GGGI mentioned their organizations' activity related waste to energy project that would engage and involve the waste operator (Small B) and Khounmoung group to use the waste at the Km32 landfill for the waste to energy project.
- The Save the Children also raised concern related to SEA/SH and VAC in the landfill site and suggested a social monitoring be in place during the operation.
- Details of the consultation workshop are included in the project's Stakeholder Engagement Plan (SEP).

157. On 8 January 2024, the ESF consultants has conducted additional consultation on the latest PWMP with VCOMs, VWMC and waste pickers with a total of 46 participants of which 27 of them are female. The consultation results are summarized as follows:

- VCOMs and VWMC reported on the status of the updated VWMC concession agreement.
- VCOMs and VWMC confirmed that the updated CA excludes the right to use the existing waste and VWMC agreed to return 20ha back to VCOMs and location of 20ha

identified and agreed with VWMC. After CA signed, land title of VWMC will be modified.

- VCOMs proposed to the Project: (i) to move the planned leachate treatment facility and leachate regulating pond to the 20ha area so they can more space to develop cells in the future; (ii) life of new cells at least 10 years; (iii) new cell for healthcare waste autoclaved by the hospitals (at the 20ha area). This will need further discussion and investigation during the detailed design and full FS and ESIA study.
- Waste pickers strongly support the Project as they believe the Project will provide them with safe working conditions through the improved sanitation facilities, vocational skills building and training, and provision of protective equipment and health and safety training.
- The volume of recyclable waste delivered to Km32 has recently reduced because all VCOMS/Small B trucks are delivering waste to the new VWMC RDF plant. Only private trucks are continuing to dump at the KM32 landfill. The private trucks have less recyclable waste as their workers sort and extract the recyclables before reaching the landfill. Waste pickers requested to allocate the VCOMS/Small B trucks to be dumped at the VCOMS area at least 50:50. VCOMs responded to the waste picker that this issue will be addressed as per request by VCOMs.
- Waste picker requested at least two buyers to buy used glass bottles as now only one buyer is allowed. They requested to allow the old buyer to buy from waste picker as the new buyer gives lower price than the old buyer and she did not buy all. VCOMs responded that they will consider and get back to the waste pickers later.
- Apart from what were presented or planned activities, they requested the project improve community waste sorting facility and provide equipment such as compactor washing machine and a building with roof, fence and gate with a security guard for their motorbike. They are happy to pay for the fee to a security guard. This will be addressed under Component 2B.

158. 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

159. 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 site-specific ES instruments will also be disclosed and consulted on site with local communities. The PWMP 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

160. The Stakeholder Engagement Plan will be periodically revised and updated as necessary in the course of the PWMP 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

161. The overall project Grievance Redress Mechanism (GRM) is also applicable to 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.

162. 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.

163. The EPFO 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 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 C2. 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.

164. 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.

165. In the PWMP 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 due to, low literacy levels, lack of Lao language
- Grievances related to 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). Some of these may be specific to ethnic groups.
- Job-related disputes (detailed in the project's LMP).

166. More details on GRM provided in SEP.

9 MONITORING AND REPORTING

167. 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.

168. To ensure effective implementation of the ESMF requirements, EPFO 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

169. At project level the EPFO PCU with technical support from CTA and E&S consultant will conduct quarterly ESMF compliance monitoring of C1 on the implementation of ESCP, ESCOP, ESMPs, EGEP and SEP to track compliance and adopt measures as necessary throughout implementation of the Component 1. EPFO 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; 3R and GCB activities will be monitored. Please see Table 9-1 for the proposed monitoring measures.

170. At sub-component level, the MONRE departments and owner of GCB and 3R activities 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 GCB and 3R activities 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: a consolidated log or ability to easily aggregate (e.g., across the two main PMUs) 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).

171. The EPFO PCU will prepare a consolidated six-month monitoring reports for C1 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.

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

173. 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).

174. 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.

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

- RAP / Livelihood restoration plan status and implementation (if relevant);
- Impacts and benefit sharing with Ethnic Groups if applicable as per the EGEF/EGEP;
- Consultations conducted with assessment of the representativeness, inclusiveness, and meaningfulness/adequacy of consultations;
- 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 SEH/SH and VAC, 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 SEH/SH and VAC and whether community members feel grievance redress methods are appropriate;
- Evidence of all workers having received awareness training on and signed/acknowledged CoC;
- 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.

176. **Accident Reports:** Reports of the circumstances of any significant accident occurring during the implementation of C1 will be promptly informed to the EPFO PCU within 48 hours. Specific reports related to the incident will be prepared and submitted as required by the WB. EPFO 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

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
Social aspects include in TORs, and developed in the respective TAs on strategic documents and action plans	Vientiane	Review of sub-component documentation	WB prior to approval of subproject activities	
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	EPFO 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; GCB and 3R activities,	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	EPFO PCU,SDAs and owner of GCB and 3R activities

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
		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.	establishment of air and water monitoring stations), while others will be throughout the construction period	
Implementation of the SEP	All subproject sites	As defined in the SEP	As defined in the SEP	EPFO PCU, SDAs and owner of GCB and 3R activities
Monitoring of GRM	All subproject sites	Whether multiple channels for receiving grievances have been put in place, how are they advertised, how accessible they are, data on status of grievances, types or grievances, are they being resolved and responded to in timely manner, etc.	All throughout the project implementation	EPFO PCU, SDAs and owner of GCB and 3R activities

9.2 MONITORING AND REPORTING FOR C2

177. 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 2. 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.

178. 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).

179. 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, disclosed, consulted and number cleared by MPWT PMU and WB.
- Data on the performance and ESMP implementation which can feed from supervisors' reports but be processed PMU ES staffs including any remedial measures that have been suggested and how they are being implemented.

- Number of technical recommendations provided during supervision and monitoring that has been implemented.

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

181. 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).

182. 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.

183. **Accident Reports:** Reports of the circumstances of any significant accident occurring during the implementation of C2 will be promptly informed to the MPWT PMU within 48 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 C2

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 requirements, including the preparation of required site-specific ESMPs, updating of the SEP, and RAPs and EGEPs as needed	Vientiane	Review of detailed design documentation	Prior to approval of detailed design	MPWT PMU; EDPD/PTI and VCOMS
Implementation of all mitigation measures specified in the ESMP (based on guidance of those specific in the	All three sites	This will need to be defined in the ESMP (in line with Pre-ESIA) but is expected to be conducted by	This will need to be defined in the ESMPs (in line with Pre-ESIA) but some measures are expected to be	EDPD/PTI, and VCOMS and CSC

Parameter to be Monitored	Location	Means of Monitoring	Schedule/ Frequency	Responsible Agency for Monitoring
ESMF and Pre-ESIA)		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.	conducted prior to the start of works (such as UXO assessment, establishment of GRM), while others will be throughout the construction period	
Implementation of the SEP	All subproject sites	As defined in the SEP	As defined in the SEP	EDPD/PTI, and VCOMS and CSC
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
Monitoring of GRM	All subproject sites	Whether multiple channels for receiving grievances have been put in place, how are they advertised, how accessible they are, data on status of grievances, types or grievances, are they being resolved and responded to in timely manner, etc.	All throughout the project implementation	MPWT PMU; EDPD/PTI; and VCOMS

9.3 External Monitoring of the ESMF Implementation

184. Given the high E&S risk of C2, external monitoring of the ESMF implementation of both

environmental and social measures of all components will be conducted by Consultant/s to be hired by the EPFO PCU and MPWT PMU. The external monitoring will be carried during Project Mid Term Review and Project Completion Review. The Efforts will be made to invite representatives from local communities and mass organizations to participate in the process. The external monitoring of the ESMF implementation will assess the performance and compliance with ESMF for all components, 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 Project implementation. The external monitoring 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 reports will be submitted to the WB. The cost for external monitoring for C1 will be covered under the Project Management budget of EPFO PCU and the cost for External Monitoring for C2 will be under MPWT PMU budget.

10 INDICATIVE BUDGET

185. 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 **USD1,226,000** plus the costs of specific mitigation measures in the ESMPs, ARAPs and EGEPs (if applicable). The cost for ESMF implementation for C1 is estimated at USD**606,000** while for C2 is estimated at **USD620,000** including the cost for full ESIA study and budget will be part of C2 cost (See Table 10-1) This budget is indicative only and should be further refined during the preparation of a full ESIA for Component 2 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 C2 will be covered under MPWT PMU budget. The estimated budget for ARAP/RAP including livelihood restoration of waste pickers will be confirmed during full ESIA stage and this will be responsible by the MPWT if applicable. See Annex 6 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**		**606,000**
1.1	Consultants and Supporting Staffs: • Chief Technical Advisor (CTA) (will also oversee ESF implementation as well) • One National E&S Consultant • Full time during first 3 years and part-time working days during the last 4 years • Two E&S Supporting staffs (new graduated)		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 C2**		**620.000**
2.1	Consultants and Supporting Staffs: • One international E&S consultant as a Team Leader – work part time. • One national environmental consultant and one national social consultant. Both will work as full time consultants for year 1		**280,000**

No.	Description	Notes	Total (USD)
	and part-time for year 2 and 3 during the construction phase.		
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	See for	300,000
2.4	Procurement of logistic supports and office facilities	included in PMU operational cost	-
	Total Estimated ESMF Implementation Budget		**1.226.000**

11 LIST OF ESMF ANNEXES AND ATTACHMENTS

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

ESMF Annexes provided in Volume II:

- Annex 1 Detailed National Legal Frameworks
- Annex 2 Site Selection Criteria separately for Naxaythong and new Construction Materials Sites (C2)
- Annex 3 Guidance Note on Regulatory Impact Assessment for C1
- Annex 4 Guideline for Preparation of Site-Specific ESIA and ESMP for C2
- Annex 5A Simple Environmental and Social Code of Practices for C1 covering Code of Conduct on SEA/SH and VAC
- Annex 5B Simple Do and Don't Measures for 3R and GCB activities under C1
- Annex 6: Detailed of Estimated Budget
- Annex 7: Draft TOR for International and National Consultants – an apply/modify to all EPFO PCU and MPWT PMU

Attachments provided in a standalone SIA-SMP:

- Attachment 1A: Labour Management Procedures (LMP) with Worker Grievance Procedure for C2
- Attachment 1B: Labour Management Procedures (LMP) with Worker Grievance Procedure for C1
- Attachment 2: Community Health and Safety Plan (CHSP) for all Components
- Attachment 3A: Simple Code of Conduct on SEA/SH and VAC for C2
- Attachment 3B: Code of Conduct on SEA/SH and VAC for C1
- Attachment 4: Resettlement Policy Framework (RPF) (including livelihoods restoration for waste pickers)
- Attachment 5: Ethnic Group Engagement Framework (EGEF)