Thanaleng Dry Port Project, Vientiane Logistics Park Company, Laos

Supplementary ESIA and ESMMP, Land Review and Supplementary Action Plan

Draft Supplementary Environmental and Social Impact Assessment Report

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ABBREVIATIONS AND ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ASEAN	Association of Southeast Asian Nations
CFS	Container Freight Station
CHS	Community Health and Safety
CR	Critically Endangered
CY	Container Yard
DEQP	Department of Environmental Quality Promotion
DoR	Department of Roads
DPWT	Department of Public Works and Transport
E&S	Environmental and Social
ECC	Environmental Compliance Certificate
ECHs	Empty Container Handlers
EEA	European Environment Agency
EHS	Environmental Health and Safety
EMEP	European Monitoring and Evaluation Programme
EN	Endangered
EPC	Engineering Procurement and Construction
ERM	Environmental Resources Management
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
FPIC	Free Prior and Informed Consent
FTF	Face To Face
GBV	Gender Based Violence
GIIP	Good International Industry Practice
GHG	Greenhouse Gas
GIS	Geographic Information System
GoL	Government of Lao
IBAT	Integrated Biodiversity Assessment Tool
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICT	Information, Culture and Tourism
IEE	Initial Environmental Investigation
IFC	International Finance Corporation
IPs	Indigenous peoples
IUCN	International Union for Conservation of Nature
LC	Least Concern
LCG	Lao Consulting Group Limited
MAF	Ministry of Agriculture and Forestry
MICT	Ministry of Information, Culture and Tourism
MPWT	Ministry of Public Works and Transport
MONRE	Ministry of Natural Resources and Environment
NEC	National Environmental Committee
NGO	Non-governmental organization
OHS	Occupational Health and Safety
PAoI	Project Area of Influence
PAPs	Project-Affected Persons
PDR	People's Democratic Republic
PPE	Personal Protective Equipment
PTRI	Public Works and Transport Research Institute
PS	Performance Standard
QA/QC	Quality Assurance / Quality Control

RAP	Resettlement Action Plan
RP	Resettlement Plan
RC	Resettlement Committee
RCP	Representative Concentration Pathway
SAP	Supplemental Action Plan
SPV	Special Purpose Vehicle
S-ESIA	Supplementary Environmental and Social Impact Assessment
S-ESMMP	Supplementary Environmental and Social Management and Monitoring Plan
RTGs	Rubber Tyred Gantries Cranes
UN	United Nations
US EPA	United State Environmental Protection Agency
VLP	Vientiane Logistics Park Campany Limited
WB	World Bank
WHO	World Health Organization

1 INTRODUCTION

1.1 MOTIVATION FOR THE PROJECT

Lao People's Democratic Republic (Lao PDR) is confronted with various obstacles and challenges in transport services and still below the international standard in term of efficiency, reliability and cost due to the fact that the required infrastructure has been developed insufficiently. A Transport Management Policy was developed in Laos in 2016 for the implementation of three strategic plans, including transform Laos from a “land locked country” into a “land linked country”. To achieve this goal, the government has facilitated the Dry Port development to be the international trade gateway which is a fundamental structure for the integration of road and railway transport to a seaport and to be the integration and distribution centre for domestic destination including inventory and transshipment facilities as well as customs clearance service. The location of the Project in Lao PDR presents an opportunity for the shortest route from East to West compared with other cross-borders and is intended to be the main transport linkage route from China to Thailand and Vung-Ang port in Vietnam crossing Lao PDR.

The Government and Sitthi Logistic (Lao) Limited Company have collaborated on the Investment and Development of Thanaleng Dry Port and Vientiane Logistics Park Project. Vientiane Logistics Park Company Limited (“VLP”, “sponsor”) has been established as a Special Purpose Vehicle (SPV), registered for the development of Thanaleng Dry Port (the “Dry Port”) and Vientiane Logistics Park Project (the “Logistics Park”) in Hadxayfong and Saysettha District, Vientiane, Lao People's Democratic Republic. Both the Dry Port and Logistics Park cover an area of 382 hectares, 55 ha of these being for the Dry Port development.

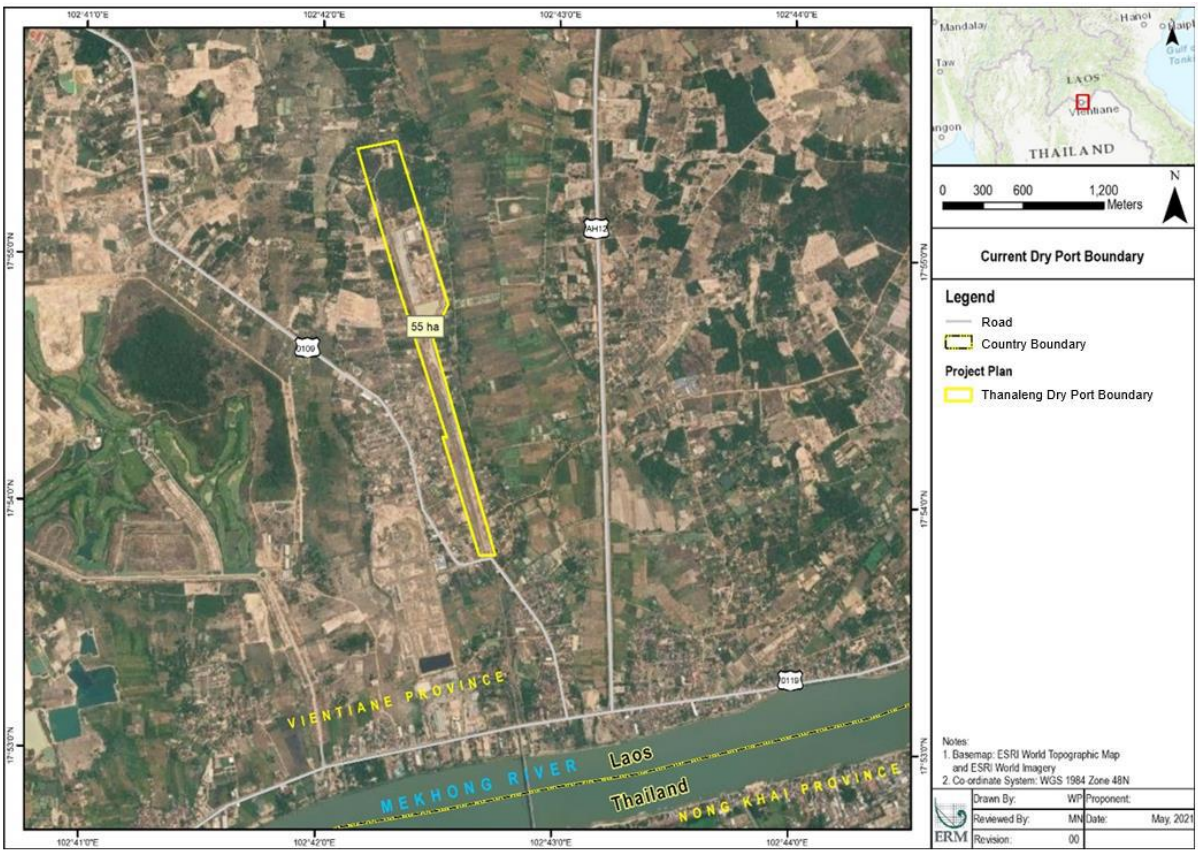
1.2 PROJECT STATUS

The Thanaleng Dry Port is located in Hadsayfong and Saysettha Districts, Vientiane Capital (see for the Project Location and its surroundings). It is on land currently owned by the Ministry of Public Works and Transport (MPWT) since 2019, but prior to this was designated as Dongphosy Protected Area. It is immediately adjacent to the Thanaleng railway station which commenced operations in 2009. A container yard was developed to the North of the station and has now, with the signing of the 50 year Concession Agreement in 2020 been incorporated into the Dry Port facility.

An Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management and Monitoring Plan (ESMMP) was prepared for the Dry Port by the Lao Consulting Group Limited (LCG) and Innogreen Engineering Company and was submitted to Ministry of Natural Resources and Environment (MONRE) in January 2020. The Project received authorization on 19th March 2020.

It is proposed that the Project be financed by the International Finance Corporation (IFC) and it appointed a third-party environmental and social consultant (Environmental Resources Management, or “ERM”) to undertake a review of the ESIA and ESMMP to assess alignment with the International Finance Corporation Performance Standards (IFC PS) and Good International Industry Practice (GIIP). Several gaps were identified and a Terms of Reference for further work compiled to address these gaps.

In July 2021, RINA was requested to submit a proposal to meet the requirements of the Terms of Reference, which required the preparation of a Supplementary ESIA and Land Review and has been appointed for this scope of work. In this scope of work, RINA is supported by Lao Consulting Group Limited as local sub-consultant. This report is the Draft Supplementary Environmental and Social Impact Assessment (S-ESIA) that has been prepared to meet the Terms of Reference. It is intended that this document will be availed for public comment before finalisation.



Source: Environmental Resources Management, 2021. Terms of Reference for the Supplementary ESIA and Land Review

Figure 1.1: Location of the Dry Port Project

1.3 PROJECT STAKEHOLDERS

1.3.1 Project Developer

Sitthi Logistic (Lao) Limited Company is subsidiary company of Phongsavanh Group which is a private company group established more than 40 years with continuous growth. Sitthi Logistic (Lao) Limited Company was established in 2009 and has invested in its business network expansion in neighbouring countries and other related businesses to develop the logistic system to be modernized and competitive. In order to implement the National Logistic Strategy for 2016-2020, Sitthi Logistic (Lao) Limited Company aims to transform its business model from providing the Dry Port transport service to include the provision of logistical service to facilitate trade and transport integration and also encourage Lao entrepreneurs to be competitive in international markets.

1.3.2 RINA

RINA provides a wide range of services across the Energy, Marine, Certification, Real Estate and Infrastructure, Mobility and Industry sectors.

With a forecast turnover in 2020 of 485 million Euros, over 3,900 employees and 200 offices in 70 countries worldwide, RINA is a member of key international organizations and an important contributor to the development of new legislative standards.

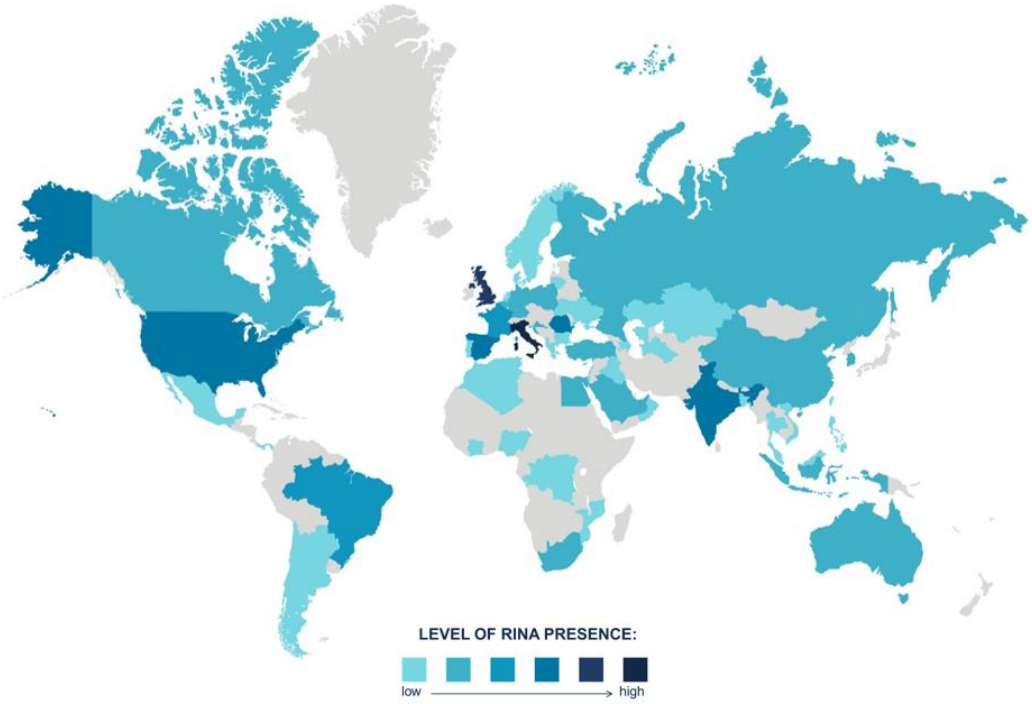


Figure 1.2: Geographical location of RINA personnel, worldwide

1.3.3 LCG

Lao Consulting Group Limited (LCG) is a leading Lao-owned and Lao-managed consulting company with local and international experiences. LCG has been established for more than 25 years and provides various services in all sectors and has recruited both local and international specialists. Lao Consulting Group Limited has been operating as an environmental consulting firm and is registered for environmental and social impact assessment by the Ministry of Natural Resource and Environment under certificate No.1043/ກຊສ.ກສສ, dated 31 October 2018

1.4 REPORT OUTLINE

This document has been developed to report on the gaps identified in the Terms of Reference and re-assess E&S impacts where the latest findings require a re-consideration of the previous assessment.

This is a stand-alone report and includes a Supplementary Environmental and Social Management and Monitoring Plan (S-ESMMP) Framework as Annexure B. It needs to be read in combination with the 2020 ESIA in order to understand the full extent of the Project impacts.

The report reports on the following:

- ✓ Approach to the S-ESIA;
- ✓ Policy, Legal and Institutional Framework, detailed for both the national and international requirements;
- ✓ Project description provided for all aspects of the Project;
- ✓ Project area of influence given the Project description; this area informing the extent of the baseline studies that have been undertaken;
- ✓ Additional baseline data collected to inform the S-ESIA:
  - Land use and land rights,
  - Biodiversity,
  - Social,

- Waste and Waste Water,
- Contaminated Land;

✓ Updated Impact Assessment;

✓ Description of the Management Plans developed to date and those proposed going forward;

✓ Closing Impact Statement and Conclusions.

2 APPROACH TO THE S-ESIA

2.1 OBJECTIVES OF THE S-ESIA

This S-ESIA has been prepared to address gaps in the understanding of the baseline conditions and the assessment of impacts so as to align with the requirements of the IFC Performance Standards. Specifically, it aims to ensure:

- ✓ that all the Project Environmental and Social (E&S) risks and impacts are identified and properly assessed, and
- ✓ measures to minimize, mitigate and/or compensate adverse impacts, and/or enhance positive impacts have been designed.

It is to be supplemented by a Supplementary Environmental and Social Management and Monitoring Plan (S-ESMMP) Framework designed specifically to ensure that the measures suggested in the S-ESIA are implemented and the their performance monitored. It is also supported by a Land Review and Action Plan which specifically details baseline conditions and measures required to close gaps associated with the implementation of resettlement against the IFC Performance Standard 5 (PS 5). Impacts associated with physical and economic displacement are also included in the S-ESIA.

2.2 SCOPE OF THE S-ESIA

The following scope was requested in the initial Terms of Reference prepared by ERM, the Project Company and the IFC for this project and has been addressed, subject to the limitations presented in Section 2.5.

- ✓ Updating the Project description to include details including the construction phases and status of construction activities, logistics details like movement of trucks and heavy vehicles, and activities during the Operation Phase of the Dry Port, labour requirements, construction layout, expected emissions and discharges and schedule for project development;
- ✓ Defining the Project Area of Influence (PAoI) in accordance with Par. 8 of IFC PS 1 by including assessment of associated facilities and indirect or cumulative impacts;
- ✓ Updating the legislative context to include reference to the IFC Performance Standards;
- ✓ Gathering additional E&S baseline data on:
  - socio-economic baseline information regarding project-affected persons (PAPs) within the PAoI,
  - biodiversity baseline data including the presence of ecosystem services, present and status of natural habitat and update on the basis of the Integrated Biodiversity Assessment Tool (IBAT) report, extent and condition of natural/modified habitat,
  - presence of indigenous peoples (IPs) within the PAoI,
  - waste and wastewater – sources and quantities to be defined, details regarding city waste and sewage treatment system capacity,
  - presence of other servitudes/ right of ways across the Project footprint area,
  - ascertain the presence of any possible contaminated land associated with historical activities that have taken place on site;
- ✓ where impacts have been modified as a result of this additional data collection, a re-assessment of the impacts has been undertaken, according to the methodology described in Section 7.1;
- ✓ identification of embedded controls, in relation to the Project design, to mitigate E&S impacts to be clearly defined;
- ✓ preparation of the SESMMP Framework and summaries of some of key Operational Management Plans so that these are in a format that can easily be incorporated into their Environmental and Social Management Systems.

  The following Operational Management Plans are to be developed:
  - Labor Management and Working Conditions (including Gender/Gender Based Violence -GBV),
  - Local Recruitment and Training Plan,
  - Occupation Health and Safety Management Plan and Procedures,

- ESHS Training Management Plan,
- Traffic and Transportation Management Plan,
- Pollution Prevention and Control Management Plan Waste Minimization and Resource Efficiency and Conservation Management Plan,
- Waste Management Plan (for hazardous and non-hazardous waste),
- Water Conservation / Minimization Plan,
- Wastewater Management Plan,
- Community Health and Safety Management Plan,
- Influx Management Plan,
- Security Risk Assessment and Management Plan (including Gender/GBV),
- Spill Prevention and Response Plan,
- Emergency Preparedness and Management Program Contractor E&S Management Plan (including Gender and GBV);

✓ Preparation of a Non-Technical Summary.

Several additional gaps were identified through our review (Inception Report – P0026924-H1 Rev. 0, Sep 2021) and relate to the following additional scope items:

✓ need for an Air Quality Monitoring Plan to be developed so that baseline conditions can be established (currently under preparation).;

✓ need for a Noise Monitoring Plan to be developed so that baseline conditions can be established (currently under preparation).;

✓ assessment of project impacts on traffic levels in the Project Area of Influence (currently under preparation).; and

✓ assessment of Climate Change Risk and the contribution to greenhouse gas emissions (currently under preparation).

The amendment of the Project scope to integrate these changes has not been approved as yet by the Project Company and as a result will form the subject of an Addendum to the S-ESIA.

2.3 PROJECT CATEGORIZATION

Given that it is anticipated that the majority of the impacts associated with the Project are reversible, IFC has classified this Project as a Category B.

The IFC Performance Standards define a Category B project as:

Category B: Business activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site specific, largely reversible and readily addressed through mitigation measures.

As such, this project would need to meet the requirements of the IFC Performance Standards with regard to environmental impact studies, informed consultation and participation, monitoring and public disclosure.

2.4 ACTIVITIES COMPLETED TO DATE

2.4.1 Inception Phase and Workplan

The Project commenced with the development of an Inception Report and detailed Work Plan to meet the required Scope of Work (P0026924-H1). The scope of the baseline investigations is presented further in Section 2.4.2 below.

The Inception Report was informed by the following activities:

✓ a Kick-Off Meeting was held with IFC, VLP and LCG on 13th August 2021;

✓ a Preparation of a Data Needs List and submission to the Client on 17th August 2021;

✓ data review has been undertaken. The documents that have been reviewed are presented at Appendix A;

✓ discussions have been held with the Sponsor to source the required documentation. These meetings were held on:

- August 23rd, 2021,
- August 24th, 2021,
- August 30th, 2021,
- September 6th, 2021,
- September 9th, 2021;

✓ discussions have been held with the local consultant LCG on below dates and they have reviewed the proposed work plan with the detailed scope of work:

- August 16th, 2021,
- August 27th, 2021, and
- September 3rd, 2021.

The Inception Report presented the results of the desktop work undertaken to date which was used to define the scope of the S-ESIA, SESMMP Framework and Land Review and Action Plan. It culminated in a detailed Scope of Work, proposed Work Plan and the identification of additional gaps in project information that needed to be addressed as part of the Scope of Work (see Section 2.2).

The detailed Work Plan that was prepared defined the responsibilities for the baseline assessments and project report compilation.

2.4.2 Baseline Investigations

Baseline investigations have been undertaken for this project in accordance with the workplan presented in the Inception Report which is provided in Table 2.1 and Table 2.2. Any deviations from the proposed activities were indicated in the text below.

Table 2.1: Environmental Baseline Studies

Baseline Study	Objectives	Task
Waste and Wastewater	• Waste quantity estimation needs to be developed for all waste streams (solid and liquid) during both the construction and operational phases of the Project. • Handling, transport and disposal means are to be identified for the construction and operational phases of the Project. • Compliance needs to be ascertained in terms of the above. • Local authorities to be consulted with regard to disposal capacity where municipal facilities are to be utilized. • Following the completion of the desktop review and discussions with key stakeholders assess the adequacy and compliance of waste management practices on site and assess the relevant impacts. Provide additional ESMMP measures as required.	• Desktop Review – Review waste management plan and/or measures presented in the documentation provided by VLP. – Identify each anticipated waste stream for the Project (detailed inventory of waste streams not provided by the Project Company). – Review data provided by VLP with regard to anticipated waste amount for construction and operation. • Discussions with Key Stakeholders: – Confirm waste stream types with VLP for each phase of the Project (detailed inventory of waste streams not provided by the Project Company). – Confirm volumes with VLP and where government facilities are to be utilized. – In discussion with VLP, confirm the approach to the storage, handling, transport and disposal of each waste type. – Hold discussions with the Vientiane City Office for Management and Service with regard to the capacity of disposal facilities. Provide minutes from these discussions. – Hold discussions with SKD Cleaning Company and any other service providers where the capacity to dispose of the waste needs to be demonstrated. Provide minutes from these discussions (these discussions were not held as permissions not obtained by VLP in this regard).
Contaminated Land	• Identify if there are any areas where historical contamination may have taken place.	• Desktop Review to understand historical activities that have taken place on site. • Use satellite imagery to identify potential activities that may have led to historical contamination (2011-2021). • Hold discussion with VLP to confirm the need to visit these areas. • Site Visit (no land contamination identified hence there has been no site visit to potential contamination areas) – Conduct a site visit in order to identify potential areas of historical contamination (Hot Spot Areas) on site and confirm the findings of desktop review. – Where possible identify the source of the contamination. – Identify such areas and provide coordinates for mapping.

Baseline Study	Objectives	Task
		– Keep a photographic record of these areas.
Air Quality	• Understand the significance of air quality impacts during the construction and operational phases of the Project.	• Desktop identification of sensitive receptors. • Compilation of an inventory of anticipated air emissions using information provided by the Sponsor. • Confirmation of the above with the Sponsor.
Infrastructure and Services	• Confirm if there is infrastructure, services or "rights of way" previously granted that will be impacted on as a result of the Project.	• Hold discussions with VLP to: – confirm and/or identify if there are potential conflict areas on the sites. – What arrangements/agreements are in place to mitigate these impacts. • Hold discussions with authorities/service providers to confirm and/or identify if there are any other conflicts. Provide a record of these discussions (no permissions received by VLP to hold discussions, but an agreement letter has been shared for the movement of the powerline servitude). • Site verification to be undertaken. • Collect photographic evidence.
Biodiversity and Ecosystem Services	• Identify Biodiversity and Ecosystems Services and objectives in the Project Area. • Choose Biodiversity and Ecosystems Services indicators & provide performance criteria. • Measure and map the priority/ value of the identified Biodiversity and Ecosystems Service indicators. • Combine Biodiversity and Ecosystems Service indicators & map indices. • Define the system and goals of Biodiversity and Ecosystem Services in the Project Area. • Interpret the Biodiversity and Ecosystems Services and objectives in the Project Area.	• Undertake a literature review of available information from national and international sources. • Source the International Union for Conservation of Nature (IUCN) Red List, Integrated Biodiversity Assessment Tool (IBAT), BirdLife DataZone, etc. for provision to LCG. • Prepare time series maps to indicate the extent of vegetation clearance that has taken place as a result of the Project. • In consultation with RINA develop a plan for the survey team on site. • Verify on site, via a floral assessment guided by the Geographic Information System (GIS) assessment, areas that could potentially be identified as Natural Habitat. • Map the extent of Natural and Modified Habitats, as defined in IFC PS6. • Additionally on site, collect data to inform an ecosystem service screening and prioritization assessment prioritization in accordance with the IFC PS6 and WRI's 2013 Weaving Ecosystem Services into Impact Assessment guidance. • Identify conservation important areas. This is likely to include any classified forests/ waterways in the Project area or any Key Biodiversity Areas (Mekong Channel; and Mekong River.). • Prepare a report documenting site findings and interpretation of baseline conditions.

Table 2.2: Social Baseline Studies

Environmental and Social Component	Objectives	Task
Social Baseline	Obtain supplementary baseline information on the current socioeconomic status of the neighboring communities	**Primary data collection** Conduct consultations with relevant stakeholders including district governmental authorities and village and unit chiefs at the local levels (Dongphosy, Dongphonhae, Thanaleng and Nakhuaytai), and any additional parties such as conservation and development groups in the area to be identified by LCG through consultations with the other stakeholders, to collect primary data on: • Population and demographics (number of people, households, gender and age disaggregated statistics). • Poverty, health and education indicators. • Vulnerable or disadvantage groups. • Indigenous peoples and ethnic minorities. • Livelihoods and income, any seasonal variance. • Land ownership status. • Gender aspects including gender-based violence. • Community infrastructure including any that were present before construction, including health, education, transport, water, electrical services. • Current status of migration, recent changes to village populations, and any conflict/pressure on local infrastructure due to influx/in-migration of workers or jobseekers. • Origins of project workforce – local, national, expat. • Sensitive receptors e.g. Noise, dust, traffic, etc. The questionnaire templates to be developed by RINA will be used for the primary data collection. LCG will maintain records of all engagements. **Secondary data collection** Research secondary sources in Lao language to find information on the above demographic topics at the national, district and village levels.
Cultural Heritage	Ascertain the presence of any archaeological, paleontological and historical remains and tangible/intangible cultural items within the Project site.	• Conduct meeting with the District-level officials representing the Hatxayphong and Xaysettha Districts, and authority members from the villages of Thanaleng, Dongphosy, Dongphonhae and Nakhou Taito identify: (1) Any potential heritage remains within the Project area of influence, and significance of the districts in terms of cultural heritage and archaeology; (2); What permitting requirements may be required and/or processes that need to be adopted should there be a disturbance of the remains. • Undertake secondary data review of Lao literature on the above topics if needed. • Based on findings of the meeting and research, conduct site walkover to identify any potential areas with cultural/archaeological significance. Given the extent of construction that has taken place on site, discussions with community leadership and the district cultural offices may be required.

Environmental and Social Component	Objectives	Task
Indigenous Peoples screening	• Obtain information on the presence of groups potentially considered Indigenous Peoples (IP) in the Project AoI.	Conduct an IP screening at the village level, to confirm the presence, number and location of households that belong to ethnic minority groups identified to date in the Project AoI (Tai Deng, Khmu, Lue, Yuan and Tai Dam), particularly in Dongphonhae village, through consultations with the village and unit chiefs and district authorities. • Based on identification of small number of households throughout the villages who belong to the ethnic minority groups, interviews were conducted to find out information about their socioeconomic characteristics and language abilities, e.g. What are their socioeconomic conditions compared to the rest of Lao society, with regards to poverty, health and education indicators, and their fluency in the Lao language, participation in the public sphere.
Land Review	• Obtain information on the previous status of land ownership and use prior to the land clearing and construction works. • Verify the land uses at the Dry Port site and access road prior to land clearing and construction works (quantity and types of impact and PAPs). • Identify the current land uses at the Project site and associated facilities. • Identify all PAPs affected by access road land acquisition. • Identify any open or ongoing (i) claims/grievances, disputed claims to land rights and land-use rights (including overlapping land claims), ownership title, and access to land, (ii) compensation, or (iii) impacts.	Interviews were conducted consisting of telephone and face to face (FTF) meetings when needed, for instance for stakeholders who lacked up-to-date telephone contact details or preferred to talk in person. The process to identify and interview the Project-affected people (PAPs), defined as individuals representing households that have experienced displacement impact by the Dry Port Project encompassing both the dry port are and access road, was undertaken through several steps as follows: • The Project Company provided information on 10 affected households that have been identified to date across both sites, among which the land review team was able to contact 6 individuals. • From 2013 to 2020, other parties including the Lao-Thai railway project also encompassing the Container Yard (CY) project took part in the land acquisition process prior to the transfer of the concession to the Dry Port Project. Following review of the total list of PAPs as compiled by the CY project, the land review team discovered that there was a total of 116 PAPs affected by the CY project's resettlement process, among which an unknown number were displaced from the 55ha Dry Port site given that the extent of the overlap between the CY project and the Dry Port's 55ha area is unknown. As a result, the land review team attempted to reach all PAPs with phone numbers listed, and were able to confirm that at least 22 out of the 116 that were affected by the CY project had been displaced from the Dry Port's 55ha area. • The remaining 94 PAPs identified in the CY project's list could not be reached or refused to talk, thus we were unable to confirm whether they were affected by displacement from the area that overlapped the Dry Port site and CY project site, or were displaced from the remainder of the CY project area. Key stakeholders engaged as part of this process included: • VLP personnel including the Resettlement Coordinator. • Resettlement Committee members, including representatives of the Department of Natural Resources and Environment (DONRE) and Department of Public Works and Transport (DPWT). • Village authorities of Dongphosy and Nakhuaytai. • Lao-Thai Railway Project Manager. • PAPs, including 29 heads of households (18 men and 10 women) at the Dry Port site and 7 at the access road (2 men and 5 women), respectively. Among the total of 55 stakeholders consulted, there were five District-level officials, seven village authority members, three resettlement committee members, two civil society organisations (Namjai Community

Environmental and Social Component	Objectives	Task
		Association and the Community Development and Environment Association), the Project Manager of the Lao Thai Railway project, two VLP personnel, 28 PAPs at the dry port site, and 7 PAPs at the access road site. The following topics were discussed throughout the consultations: • Previous and current land uses at the dry port and access road sites with details on formal and informal land use, previous settlements in the location, and current uses including livestock herding, informal farming and use of other natural resources. • The process used for land acquisition and clearing including census and socio-economic data collected, asset inventory, valuation of assets, valuation rates used, cut-off date, compensation, livelihood support and any other assistance provided to PAPs, timeframes for the activities, and engagement and consultations with PAPs. • Number and types of PAPs affected (formal and informal land users), type of impact (i.e., physical and/or economic displacement), and impact if any on Indigenous Peoples or vulnerable PAPs. • Any open (i) claims/grievances, disputed claims to land rights and land-use rights (including overlapping land claims), ownership title, and access to land, (ii) compensation, or (iii) impacts. • Types of land tenure in place, including any traditional or customary ownership/tenure. • Previously displaced PAPs' experience with the land acquisition process conducted by the CY project, their current whereabouts and contact details. • Access road PAPs' experience with the land acquisition process to date, and any open claims, grievances, compensation or impacts. • The resettlement committees' organizational structures, individual roles, recent activities and schedule of tasks. At the access road site, seven of the 14 PAPs were interviewed about their experience with the land acquisition process to date, any open claims, grievances, compensation or impacts, and socioeconomic status including income, livelihoods, assets, housing, and demographics. The remaining PAPs were unable to be contacted, with some currently based in Thailand, however adequate information was available on each of the 14 cases given that the compensation process was initiated within the past year and relevant documentation was available. With reference to the Dry Port site, given the lack of available information, the team asked the PAPs to show and pinpoint the location of the previously affected land plots, and their current location. A desk-based review of available documentation was also undertaken, including records of compensation payments, compensation rates, signed memoranda of agreement, meeting minutes, and maps. The documentation review formed the basis of the team's efforts to verify specific activities undertaken as part of the land acquisition process. Documents reviewed include the following: • Preparatory Survey on Vientiane Logistics Park (VLP) Project commissioned by Japan International Cooperation Agency (JICA) in July 2015, with a cadastral map of the Project-affected households. • Review of compensation documents of the Dry Port Project provided by VLP. • Compensation rates for infrastructure, land and plantations (2020).

Environmental and Social Component	Objectives	Task
		Documents provided by VLP for the Dry Port Project: • 2020 announcement of the encroachment cut-off date by the Governor of Vientiane Capital for the wider Vientiane Logistic Park covering the Dry Port and access road areas, prohibiting encroachment, selling, exchange, transfer of land use right, use of land and any construction or use of developments on the Project areas following the date. • Decision of Vientiane Capital on the establishment of the Resettlement Committee and its roles and responsibilities. • Aid memoire on compensation of the relocated people from the dry port area. • Aid memoire on compensation of the relocated people from the access road. • Minutes of meeting in resolution of grievances. • Timeline of Dry Port (2020). Documents provided by the Lao Thai Railway department: • Inventory list of loss from the Container Yard (CY) project. • Summary of compensation payments (2013-2021).

2.4.3 Assessment of Impacts

The methodology that has been adopted for the assessment of project impacts is provided in Section 7.1 of this report.

Our current assessment of impacts associated with the decommissioning phase of the Project in relation to air quality, waste-water, solid waste and social are likely to mirror the construction phase impacts; however given that the life of the operation anticipated is for a further 30-40 years; the baseline conditions are going to have been significantly altered and we recommend that an assessment for the decommissioning phase is undertaken one year in advance of this commencing and a specific decommissioning management plan be developed to support this. With regard to loss of natural habitat and ecosystem services, these impacts have already taken place during the construction phase of the Project and have been assessed in this report.

The following impacts have been assessed:

- ✓ Air Quality
  - Increased PM10 levels in the Project area as a result of construction activities,
  - Increased nuisance dust in the Project area as a result of construction activities,
  - Increased vehicle emissions in the Project area as a result of construction activities,
  - Increased vehicle emissions in the Project area as a result of operation activities;
- ✓ Surface and Groundwater Quality
  - Contamination of surface and groundwater bodies as a result of contaminated runoff and the release of untreated waste water during construction phase,
  - Contamination of surface and groundwater bodies as a result of poor waste management practises on site during construction phase,
  - . Contamination of surface and groundwater bodies as a result of contaminated runoff and the release of untreated waste water during operation phase,
  - Contamination of surface and groundwater bodies as a result of poor waste management practises on site during operation phase;
- ✓ Solid-waste
  - Contamination of water resources and soils as a result of solid waste generation during the construction phase of the Project,
  - Increased demand on capacity of existing waste disposal facilities to manage solid waste generation during the construction phase of the Project,
  - Contamination of water resources and soils as a result of solid waste generation during the operational phase of the Project,
  - Increased demand on capacity of existing waste disposal facilities to manage solid waste generation during the operational phase of the Project;
- ✓ Biodiversity
  - Impact related to loss of habitat during the construction phase of the Project,
  - Impact on ecosystem services during the construction phase of the Project,
  - Impacts on ecological receptors during the operation phase of the Project;
- ✓ Social
  - Land acquisition and resettlement as a result of the construction of the Project,
  - Labor Management & Exploitation during the construction phase of the Project,
  - Occupational Health and Safety (OHS) Incidents during the construction phase,
  - Project-Induced Migration during the construction phase,
  - Social Conflict and Violence during the construction phase,
  - Increase in Communicable Disease Incidence Rates,
  - Increased pressure on existing infrastructure and services in the project area during the construction phase,
  - Local economic benefits as a result of the construction phase of the Project,

- Cultural heritage,
- Labor Management &Exploitation during operation phase,
- Occupational Health and Safety (OHS) Incidents during operation phase,
- Community Health and Safety Impacts during operation phase,
- Increased pressure on existing infrastructure and services in the project area during operation phase,
- Local economic benefits as a result of the operation phase of the Project.

2.4.4 Stakeholder Engagement

To date, stakeholder engagement activities have been limited to those required to support the social baseline studies and the first engagement of all stakeholder groups and proposed with the disclosure of the S-ESIA.

From 14th October to 14th November 2021, a series of private interviews were conducted consisting of telephone and face to face (FTF) meetings. Due to COVID-19 restrictions on gatherings, public meetings and focus group discussions with multiple stakeholders in attendance were not feasible.

VLP arranged the meetings through presentation of a formal letter introducing the Project, Project Company and RINA and booking an appointment with a five-day notice period provided. Questionnaires that were tailored for each stakeholder groups were used, with responses recorded within the templates. Based on the information provided through the meetings, the Project location, existing infrastructures, community amenities and culture heritage sites in the vicinity of the Project area were mapped out as detailed in the relevant sections of this report.

A variety of topics were discussed with the stakeholders to gain a more comprehensive understanding of the socioeconomic characteristics of the local communities, including the following:

- ✓ Population and demographics;
- ✓ Poverty, health, and education indicators;
- ✓ Vulnerable or disadvantage groups;
- ✓ Indigenous peoples and ethnic minorities and their socioeconomic characteristics;
- ✓ Livelihoods and income, any seasonal variance;
- ✓ Land ownership status;
- ✓ Gender aspects including gender-based violence;
- ✓ Community infrastructure including any that were present before construction, including health, education, transport, water, electrical services;
- ✓ Status of migration, recent changes to village populations, and any conflict/pressure on local infrastructure due to influx/in-migration of workers or jobseekers;
- ✓ Origins of project workforce – local, national, expat;
- ✓ Cultural heritage remains within the Project area of influence, and significance of Hadxaifong district in terms of cultural heritage and archaeological sites.

Among the total of 55 stakeholders consulted as displayed in Table 2.3 below, there were five District-level officials representing the Hatxayphong and Xaysettha Districts, seven village authority members from the villages of there were five District-level officials representing the Hatxayphong and Xaysettha Districts, seven village authority members from the villages of

Thanaleng, Dongphosy, Dongphonhae and Nakhou Tai, three resettlement committee members, two civil society organisations of Namjai Community Association and the Community Development and Environment Association, the Project Manager of the Lao Thai Railway project, two VLP personnel, 28 project-affected persons (PAPs) at the Dry Port site, and 7 PAPs at the access road site.

Table 2.3: Stakeholders Consulted for Primary Data Collection

#	Date	Stakeholder Name	Organisation / Relevance	FTF	Phone
1	14/11/2021	Ms. Phout	Relocated PAP Dry Port (previously CY)	X	
2	14/11/2021	Ms Noud	Relocated PAP Dry Port (previously CY)	X	
3	14/11/2021	Mr Say Inn	PAP Dry Port (affected tree/crops and structure)	X	
4	15/10/2021	Mr. Khampasong Sanehah	Head of Information and Cultural Office, Hatxaifong District		X
5	08/11/2021	Ms. Khoundi Chanthachack	PAP Dry Port (affected tree/crops and land)		X
6	07/11/2021	Ms. Phimmasone Silimanotham	PAP Dry Port (affected tree/crops and land)	X	
7	03/11/2021	Mr. Xeo Chanthavong	PAP Dry Port (affected tree/crops and land)		X
8	03/11/2021	Ms Noulot	PAP Dry Port (affected tree/crops and land)		X
9	03/11/2021	Mr. Sounthone Kenbandith	PAP Dry Port (affected tree/crops and land)		X
10	03/11/2021	Mr. Somboun Sisouvanh	PAP Dry Port (affected tree/crops and land)		X
11	02/11/2021	Mr Xien	PAP Dry Port (affected tree/crops and land)		X
12	02/11/2021	Mr Sensack Silavong + Ms Phone	PAP Dry Port (affected tree/crops and land)		X
13	02/11/2021	Mr Chittasone Phanthavong	PAP Dry Port (affected tree/crops and land)		X
14	02/11/2021	Mr Ouang & Ms Khim	PAP Dry Port (affected tree/crops and land)		X
15	02/11/2021	Mr Souk Sinthavong	PAP Dry Port (affected tree/crops and land)		X
16	02/11/2021	Mr Somsack Vilaythong	PAP Dry Port (affected tree/crops and land)		X
17	01/11/2021	Mr Phetsamone Thoummanivong	PAP Dry Port (affected tree/crops and land)		X
18	01/11/2021	Mr Xayasack Keomanivong	PAP Dry Port (affected tree/crops and land)		X
19	01/11/2021	Ms Kongpheng Phetvilay	PAP Dry Port (affected tree/crops and land)		X
20	01/11/2021	Mr Bounpheng Sihalath	PAP Dry Port (affected tree/crops and land)		X
21	01/11/2021	Mr Lam Ngeun Soukpanya	PAP Dry Port (affected tree/crops and land)		X
22	01/11/2021	Mr Somphavanh Latsavong	PAP Dry Port (affected tree/crops and land)		X
23	01/11/2021	Ms Thing & Mr Bouathong	PAP Access Road		X
24	01/11/2021	Ms. Bounthavi Sounthone	PAP Access Road		X
25	31/10/2021	Mr Khampha Leenaher & Ms Loui	Relocated PAP Dry Port and ethnic minority member		X
26	29/10/2021	Ms. Sengla Chommana	PAP Dry Port (affected tree/crops) and ethnic minority member		X
27	29/10/2021	Mr Khampha	President Community Development and Environment Association		X
28	28/10/2021	Mr. Sangkhom	Resettlement Committee (DPWT), Lao Thai Railway		X
29	28/10/2021	Mr. Khonesavanh	VLP		X

#	Date	Stakeholder Name	Organisation / Relevance	FTF	Phone
30	27/10/2021	MS. Thongkhoun Douangmany	Relocated PAP Dry Port	X	
31	26/10/2021	Mr. Khonesavanh	PAP Access Road		X
32	26/10/2021	Mr Xieng's wife	PAP Access Road		X
33	26/10/2021	Ms. Vimon	PAP Access Road		X
34	25/10/2021	Mr Tom	Relocated PAP Dry Port		X
35	22/10/2021	Mr. Somchai	Relocated PAP Dry Port		X
36	22/10/2021	Mr Soukaseum Bodhisan	Local CSO, Namjai Community Association		X
37	22/10/2021	Ms. One, the mother of Ms. Monlady	Relocated PAP Dry Port	X	
38	21/10/2021	Ms. Viengvang	Relocated PAP Dry Port		X
39	19/10/2021	Ms. Chansaweang	PAP Access Road		X
40	13/10/2021	Mr. Khonesavanh	Dongphosy Village Resettlement Committee	X	
41	14/10/2021	Mr. Chanthala	Resettlement Coordinator, VLP	X	
42	15/10/2021	Mr. Soukhan Vonglatsamy	Nakhouay Tai Village Resettlement Committee	X	
43	12/10/2021	Ms. Pheang	PAP Access Road		X
44	12/10/2021	Mr. Phothone	Lao Thai Railway Project Manager		X
45	22/10/2021	Ms. Lina	Secretary of Project Committee-Hatxayphong District	X	
46	22/10/2021	Mr. Thavyxay Xaypaseuth	Head of WTPO, Xaysettha District		
47	21/10/2021	Mr. Khamphan, Ms. Silivanh, Mr. Dethsamphan	Thanaleng Village Authority		X
48	20/10/2021	Ms. Keomany, Ms. Khambang, Mr.Khonesavanth	Dongphosy Village Authority		X
49	20/10/2021	Mr. Keoudone, Mr. Monekeo, Mr. Vixieng	Dongphonhae Village Authority		X
50	19/10/2021	Mr. Hounla, Mr. Tiengkham, Bounthavy	NakhouaTai Village Authority		X
51	18/10/2021	Mr. Bounpaseuth	Deputh Head of Xaysettha District Office	X	
52	15/10/2021	Mr. Bounthavy	Deputy Chief of Nakhouatai Village	X	
53	15/10/2021	Mr. Khonesavanh, Ms Phongpheth	Deputy Chief of Dongphosy Village	X	
54	14/10/2021	Mr. Vixieng	Deputy Chief of Dongphonhae Village	X	
55	27-29/10/2021 2-3/11/2021	Ms. Manola	Senior project coordinator/ coordinate with the head of the district cabinets		X

2.5 Assumptions and Limitations

Despite intentions and efforts to meet all of the scope and information requirements of this project, there are several limitations that RINA has been exposed to which has limited the assessment of project impacts. These are:

- ✓ the construction of the Project is near to completion and thus collecting pre-development baseline information has been constrained. This is with reference to:
  - Biodiversity impacts,
  - Heritage impacts,
  - Potential for contaminated land on site,
  - Resettlement impacts associated with the Dry Port site,
  - Air quality impacts,

- Noise impacts; and
- Traffic impacts during the construction phase of the Project;

✓ limited and in some cases contradictory information in relation to waste management activities on site (solid and liquid waste streams) that could be generated by the Project has been provided by the Project Company;

✓ lack of availability of information regarding waste service providers outside of Lao that could management hazardous waste streams;

✓ limited information on the construction phase project layout and facilities has been provided to assist in the identification of construction activities, location of these, potential sources of contamination and location of these to sensitive receptors. The assessment of construction phase impacts has been undertaken without a comprehensive geographical understanding of the Project construction activities;

✓ during the data collection phase numerous versions of the Dry Port layout plan have been provided for our review. While we have done our outmost to interpret the Project components and their location within the Project area some uncertainty with regards to the presence and location of infrastructure~~;~~

✓ Although mitigation has been proposed for the construction phase of the Project as part of the impact assessment, this stage of the Project has been completed and thus may not have been implemented;

✓ The present report and scope of work are related to the Dry Port footprint (including the Access Road B) covering a surface of 55 ha. For access road section denominated Road A, even if we have provided a description thereof, it has not been included in our impact assessment as was excluded from the terms of reference for the study.

Communication and Stakeholder Engagement

✓ due to ongoing COVID-19 restrictions on gatherings and individual concerns about transmission, public meetings and focus group discussions with multiple local community members were not feasible. Our primary data collection methods were limited to private meetings, either on the telephone or face to face where required, with authorities at the village and district levels;

✓ several project-affected persons (PAPs) previously affected by the land acquisition process have moved away from the local area and/or changed phone numbers, and are no longer contactable or refused to talk with the study team. Thus the displacement impact experienced and their current conditions and whereabouts could not be ascertained;

✓ for many PAPs, the Dry Port land acquisition displaced them from the area several years ago, thus their recollection of relevant events such as the amount of notice given prior to the cut-off date, compensation amount paid, and the number and types of meetings conducted were not clear. The compensation paid provided is an estimate in many cases. Further information on data limitations encountered regarding land acquisition and resettlement are detailed in the Land Review.

3 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Overview

This Section provides a brief overview of the regulations and standards that will be applied to the Project (national and international) for the relevant phases of the Project. A brief description of the administrative and institutional framework in Lao has also been provided.

Gaps between the local legislative requirements and the IFC Performance Standards were identified in the development of the Terms of Reference for this study. This was further expanded on following a more detailed review of available information in the Inception Report for this study and is detailed in Section 2.2 of this report.

Where applicable, relevant threshold limits that need to be met for the Project have been provided. These relate to the more stringent requirements between the local legislation and international good practise.

3.2 Administrative Framework

Vientiane Capital is the capital of Lao PDR, an administrative, political and economic centre, located in the central part of the country bordering with Vientiane province in the north and Borlikhamxay in the south and the Kingdom of Thailand (Nong Khai province) in the west, where it has the Mekong River as a border.

The administrative system within the capital is based on local administrative law, which divides the capital administration into three main branches: the capital administration, the district administration and the village administration. These respective administrations are headed up by the Governor; the Chief of District Administration and the Village Chief. Vientiane Capital has a total area of 3,920 km^2 which consists of 9 districts: Chanthabuly district, Sikhottabong district, Saysettha district, Sisattanak district, Naxaithong district, Xaythany district, Hadxayfong district, Sangthong district and Pak Ngum district.

The Vientiane Capital Administration Office is a direct structure of the Provincial Cabinet, which has the role to assist the Governor in his tasks. The Capital Departments serve as the administrative authority of the Capital.

At the District level, there is a District Administration, that in addition to other responsibilities, implements the development plan within its district responsibilities.

Village organizations may be one or more units, which are established as required.

The administrative structure of the province is shown in the Table 3.1.

Table 3.1: Capital Administration Organisational Structure

Local administration	Organizational structure	Personnel
National	National Congress of the Lao People's Revolutionary Party (LPRP) Central Committee of the Lao People's Revolutionary Party Politburo of the Lao People's Revolutionary Party Secretariat of the Lao People's Revolutionary Party National Assembly Prime Minister's Office Ministries	President of Lao PDR Prime Minister Ministers Members of the central committee Personnel appointed in national administrations President and Vice President of the Court Judges of Supreme People's Court

Local administration	Organizational structure	Personnel
	National Bank of the Lao PDR Supreme People's Court Public Prosecutor's Office	
Provincial/Capital administration	The provincial/city cabinet The field offices of the line ministries and equivalent organizations	Governor Vice Governor The Chief and deputy chief of the city cabinet Director and Deputy Director of the departments Personnel appointed in provincial and city administrations
District Administration	The district cabinet; and the field offices of the line ministries and equivalent organizations	Chief of the district Deputy Chief of the district Head and deputy head of district office Head and deputy head of district office in each unit line Personnel in the district administration.
Village administration	The village chief, who is the chief executive of the village administration, represents the village and is responsible to the District, or city administration and all villagers in the implementation of his/her role, authority and duties.	Chief of the village Deputy Chief of the village Head of village group Village committee • Youth Union. • Security unit. • Women's Union. • Elderly unit. • local defence and security unit. • A grievance mechanism unit. • Tax/village finance unit.

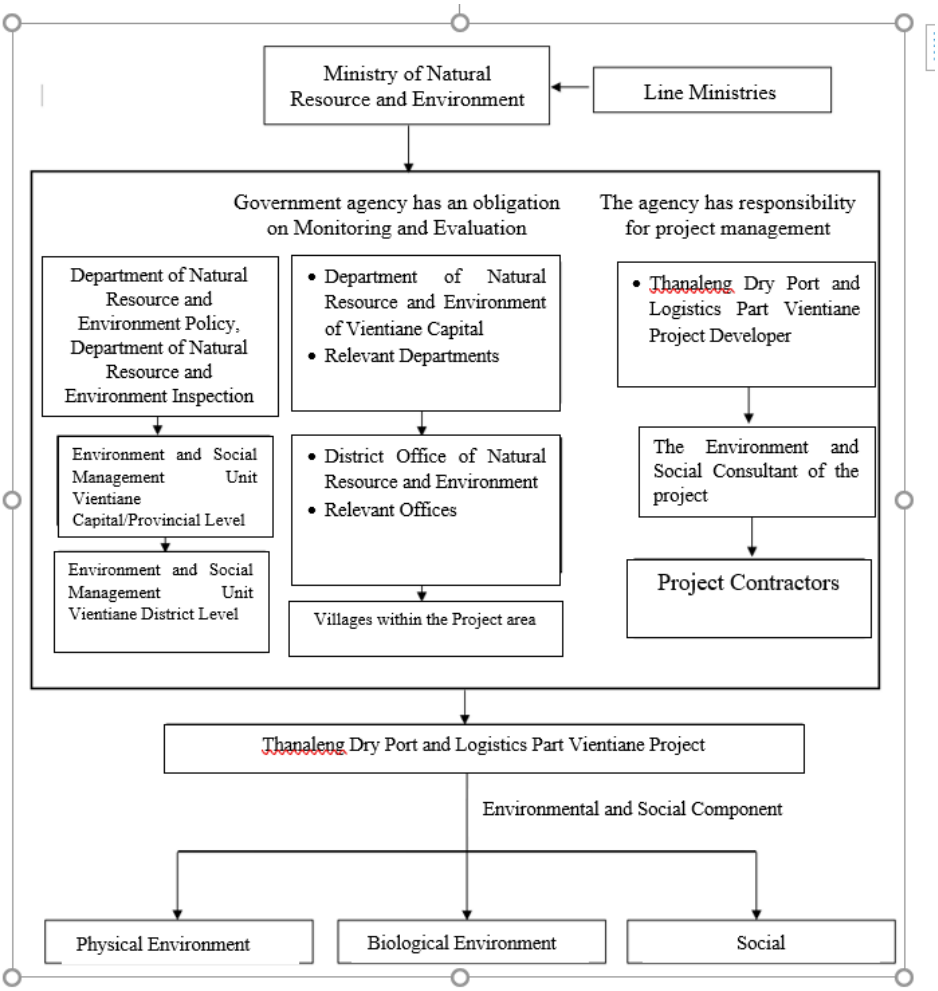
Source: LCG and Innogreen, Jan 2020. Final Environmental and Social Impact Assessment Report

3.3 Institutional Framework

The Ministry of Natural Resources and Environment (MoNRE) is the central coordinator with relevant ministries, organizations, local authorities and other sectors and is responsible for distributing Environmental and Social Impact Assessment Reports (ESIA) to relevant ministries at the central, provincial, municipal and district level and to nearby communities. Reporting lines for environmental management are presented in Figure 3.1 Authorities engaged in the administration of environmental matters are detailed below.

MoNRE: Since mid-2012, MoNRE is the lead agency responsible for effective management of natural resources and environment including water resources, forest/biodiversity, land, minerals, ESIA processes and environmental quality. The new prime ministerial decree (No.573/PM,2021) restructures the organisation of the Ministry to comprise of 12 agencies including Department of Natural Resource and Environmental Policy (DNEP), Department of Environmental Quality Promotion (DEQP), Department of Natural Resource and Environmental Inspection (DNEI), Department of Water Resources (DWR), Department of Meteorology and Hydrology (DMH), Department of Disaster Management and Climate Change (DDMCC), Department of Land (DoL) and Pollution Control

Department (PCD). The technical and management capacity of these agencies remains weak due to the limited number of qualified staff and budget. Most activities are carried out with technical assistance and operational supports by international financing and/or donor agencies. The role and responsibilities of MoNRE are clearly defined by the Environment Protection Law (revised in 2013). This includes periodic site inspections in order to ascertain compliance with the ESMMP (monthly at the District level, quarterly at the provincial level and bi-annually at the national level) during the construction and operational phases (frequency dependent on the time-frame presented in the ESMMP) of the project and providing the comments on the monitoring reports provided for the Project owner.



Source: LCG and Innogreen, Jan 2020. Environmental Management and Monitoring Plan - Final Report

Figure 3.1: Reporting lines for environmental management and monitoring

The National Environmental Committee (NEC) established by the Environmental Protection Law (EPL) is the highest decision-making body for environmental management. The NEC is chaired by the Deputy Prime Minister responsible for natural resources and environment and comprises representatives of key agencies as members and the Department of Environmental Quality Promotion (DEQP) of MONRE as the secretariat. Key institutions related to the Project are highlighted as follows:

Ministry of Agriculture and Forestry (MAF): MAF is responsible for ensuring effective management of agriculture, forests, and fisheries/aquaculture and it also went through a major reorganization during 2011-2012. It comprises many departments including the Department of Irrigation, the Department of Agriculture, the Department of Forestry, the Department of Inspection and the Department of Fisheries.

MPWT: Ministry of Public Works and Transport is responsible for the management of public works, urban development, and land and water transport including domestic water supply and sanitation in urban areas. It is a relatively large and stable ministry and key agencies therein include the Department of Roads (DoR), the Department of Waterways Transport, the Department of Urban Development, and the Public Works and Transport Research Institute (PTRI). DoR is responsible for road development and maintenance and has the following technical divisions: Project Management Division, 4 Regional Road Maintenance Projects, and the Technical Division. At a provincial level, the provincial Department of Public Works and Transport (DPWT) is responsible for the planning and implementation at provincial and local levels including road maintenance. The Environment and Social Division of PTRI is responsible for the establishment of safeguard procedures and guidelines namely the Environmental and Social Operations Manual (ESOM) for the Lao road sector, supervision, and training of safeguard for MPWT.

The Provinces: In addition to the central agencies, provincial departments of MoNRE, Ministry of Energy and Mines (MEM), Provincial Department of Energy and Mines (PDEM), Ministry of Agriculture and Forestry (MAF), Provincial Agriculture and Forestry Offices (PAFO), and MPWT (DPWT) exist in each of the 17 provinces. A Provincial Environmental Committee (PEC) is also established for each province. According to the Government of Lao (GoL) policy on decentralization as instructed by the National Assembly, the provincial and district authorities have begun to play a key role in planning, decision making, and the monitoring of investment activities. For the energy sector, provincial departments are responsible for approval and monitoring of energy generation projects equality or less than 15 megawatts while the central agencies remain responsible for approval and management of large-scale investments. For the mining sector, the provincial departments are responsible for approval and monitoring of investments of less than US$2 million. For natural resources and environment, Provincial Office of Natural Resources and Environment (PoNRE) plays a key role in management of water, land, and forest resources as well as on environmental management including conducting review and monitoring of the Initial Environmental Investigation (IEE) process and Environmental Compliance Certificate (ECC) issuance. In addition, it shall summarize and report on the environmental monitoring of projects to the Provincial/Capital authority and Ministry of Natural Resources and Environment for their acknowledgement and periodic guidance.

The District Office of Natural Resources and Environment: The District Offices are engaged in summarising and report on the environmental monitoring of project to the district authority and the Provincial/Capital Natural Resources and Environment Department for their acknowledgment. The District Office of Natural Resources and Environment is the central coordination on the monitoring of mitigation measure implementation for environmental and social impact based on the Environmental and Social Impact Assessment report and Environmental and Social Management and Monitoring Plan under its responsibility.

Provincial Resettlement Committee: The further planning and implementation of the Project will be undertaken through consultation with, and advice from, provincial and district government agencies, through the Resettlement Committee (RC). The main function of the RC is to represent the interest of the Affected People (AP) -people whose assets are adversely impacted by the project, and stakeholders in dealing with project impacts and mitigation measures. The details of the roles and responsibilities of the RC are provided in Decree 84, Articles 19-20. The RC will appoint a management and an operational unit to be responsible for the overall process of resettlement and compensation. The RC will meet regularly, and will have an inaugural meeting at least one month before the start of the Project, continuing with this role for up to two years after completion of construction activities (to monitor impacts and take action where necessary). The minutes of meetings and activities of RC will be incorporated into the overall Project internal and external monitoring. The responsibilities of RC will be as follows:

- ✓ Coordination of relevant Government organizations with Environment & Social Management Unit (ESMU) to ensure that Resettlement Plan (RP) is properly implemented;
- ✓ Review and provide comments on valuation of land and assets (crops, production, market values, etc.) for compensation for PAPs;
- ✓ Organization of provincial and district level meetings and consultations as required;
- ✓ Monitoring and auditing funds that are earmarked for RP implementation; and
- ✓ Participation in resolution of, and follow through, of claims or complaints lodged via the established grievance redress procedure.

3.4 LAO LEGAL FRAMEWORK

3.4.1 Relevant Policies in Lao

3.4.1.1 9th five year National Socio-Economic Development Plan

With regard to development in Laos this is largely currently driven by the 9th five-year national socio-economic development plan (NSEDP 2021-2025) approved at the inaugural session of the Ninth National Assembly on 22-26 March 2021 in accordance with the Resolution No. 20/NA, dated 26 March 2021 of the Lao PDR.

Output 1 of outcome No.5 describes the willingness of the Lao government to continue the engagement in regional and international cooperation through the integration of robust infrastructure and the effective utilisation of national potential and geographic advantages. It states:

"Focus should be placed upon developing and upgrading transport infrastructure, transit and transportation services, transmission lines, and telecommunication and postal services to enable internal connectivity, and connectivity with neighbouring countries, the region, and beyond in a targeted and coherent manner. This should be done through systematic monitoring of the efficiency of logistics services with an aim to develop Lao PDR into an important transit point for the transportation of goods and to expand the geographic, and other"

3.4.1.2 Transport Management Policy

The Transport Management Policy developed in 2016 consists of two components: (1) providing the safe and efficient transport across the country contributing to the development status of the country (2) to transform from a land-locked to land-linked country with regional connectivity by providing the efficient and reliable transport infrastructure and facilities especially transit routes; and (3) facilitating cross border transport on goods and passengers between and among neighbouring countries.

The National Strategy on Freight Transport and Logistics Development, identifies the need to be considered as "the logistics centre in the region" through the implementation of three strategic plans:

Strategy	Strategy 1: Integration of Cargo Flow	Strategy 2: Business Stimulation	Strategy 3: Market Expansion
Focal Point	- Develop the logistics centre. - Improve the logistics routes. - Improve the transport efficiency. - Build up credibility to be the logistics centre.	- Attract the international logistics business. - Strengthening domestic business. - Strengthening on the logistic management.	- Facilitate contract on cross- border transport in Great Mekong Sub-region countries. - Improve the cross-border procedure. - Establish logistics free trade market.

Strategy 1 in the table above focuses on the development centre of which the Dry Port will form a part thereof.

3.4.2 Laws, Agreements and Decrees

3.4.2.1 Law on Environmental Protection Amended in 2013

This law defines the principles, regulations and measures related to environmental management and also determines the responsibility of the relevant state organizations. It requires the approval of Environmental and Social Management and Monitoring Plans prior to project implementation. It also defines the community participation required for development projects. Of specific importance in terms of the Law are:

- ✓ Article 22: stipulates the need for an Environment and Social Impact Assessment (ESIA) in order to anticipate impacts that may affect the environment, society and nature including considerations related to climate change in Lao PDR, and the requirements of the ESIA. It stipulates the need for Environmental Social Management and Monitoring Plans (ESMMP) and notes that both the ESIA and ESMMP require approval from MoNRE prior to the commencement of development;
- ✓ Article 25: Limitation of Impacts Derived from Construction Activities and Others (Revised): Persons, legal entities and organizations providing services on construction, renovation and others for roads, bridges, water supply, electrification, irrigation, airports, buildings, or factories, which emit pollutants, shall take measures or

actions to prevent against or correct environmental impacts caused by toxic chemicals, smoke, dust, vibration, noise, light, odour, wastes and disturbance as being stipulated by the National Environmental Quality Standards;

- ✓ Article 48: Public Participation (New): An integrated spatial plan, strategic environmental assessment, environmental action plan, social and natural environmental impact assessment, environmental management and monitoring plan, pollution control and others, shall be developed with participations by organizations, local authorities and people, who are directly or indirectly affected by investment projects or activities.

3.4.2.2 Agreement No.707/MONRE, dated 5th Dec 2013

Agreement on the Endorsement and Promulgation of Guideline on the Public Involvement in the ESIA process for Investment Projects (No.707/MONRE, dated on 5th Dec 213) aimed to ensure the implementation on public involvement to be correctly, transparently and consistently applied. The purpose of this agreement is to encourage the public participation in the stages of planning and making decision on the investment project including the environmental and social impact mitigation and benefits from the project. This is to avoid or minimize the conflict related to the project development as well as to provide the opportunity for people to share their feedback on the project implementation.

3.4.2.3 Agreement No.2796/MoNRE, dated 19th December 2018

Agreement on the Endorsement and Promulgation of Guideline on the Environment and Social Impact Assessment Report, No. 2796/MoNRE, dated 19 December 2018 was established to instruct and provide the guidance to the project developers and environmental practitioners operating in Laos on the requirements of the Environment and Social Impact Assessment Report for investment projects and activities in Laos. This is to ensure the quality, accuracy, transparency, and consistency in ESIA delivery.

3.4.2.4 Decree on the Environment and Social Impact Assessment No.21/GO, 2019

This Decree defines principles, regulations, and procedures on management, monitoring, and evaluation of the Environmental and Social Impact Assessment (ESIA) so that the process will be implemented correctly, transparently, and consistently with the aims to prevent, reduce, and mitigate negative environmental impacts. There are eight parts and 87 Articles. Guidelines are set for public comment on investment projects and activities during the development phase and requires the review of the IEE report, the ESIA report, and the EMMP. Monitoring of environmental management in each phase of investment projects is required.

3.4.2.5 Decree on the Compensation and Resettlement No.84/GO, 2016

A decree on Compensation and Resettlement for Development Projects (No.84/GO, 2016) provides principles, regulations and standards for the management and monitoring of compensation for losses and the management of resettlement activities. The principles presented are to ensure that project affected people are compensated, resettled and assisted with permanent livelihood alternatives leading to an improvement in living conditions. Article 8: The implementation of compensation plans: stipulates that the project owner must, in the case of physical displacement activities, compensate for the land by replacing land on the basis of the value determined and ensuring that there are no existing rights on the replacement land. If replacement land cannot be provided, the project owner has to provide other forms of compensation based on the value of affected land. In the case where there is a loss of community infrastructure and facilities, the project owner must be responsible for the rehabilitation and repair of these facilities.

3.4.2.6 Law on Land Traffic No.24/NA, 2012

Law on Land Traffic (New), No.24/NA, dated 12th December 2012. This Law determines the principles, regulations and measures for the implementation, operation, management, monitoring and inspection of business related to domestic and cross- border land transport in order to facilitate and control the development of passengers and good transports. The aim of the Law is to improve the transport in a convenient, safe, quick, timely, effective, modern and sustainable manner, minimising the environmental impact.

3.4.2.7 Land Law No.70/NA,2019

The aim of this Law is to promote the use of land for project development ensuring conformity with laws and regulations and also to contribute to national socio-economic development as well as to the protection of the environment, social and nature. The articles related to the project are described in the following articles:

- ✓ Article 6: All individuals and organisations shall have the obligation to protect the land to ensure that it is in a good condition in which there is no soil erosion, land subsidence, and soil degradation. There is to be no further degradation of land as a result of land use and/or a change in the land categorisation;
- ✓ Article 14: Change in Land Category - The change of land use from one category to another category can be made only if it is considered to be necessary to use the land for another purpose without having negative impact on the natural or social environment and must have the prior approval of the concerned management authorities.

3.4.2.8 Law on Traffic Road No.23/NA, 2012

The Law on Land Traffic defines principles, regulations and measures for the management of land traffic, use of various vehicles on the roads, traffic safety and traffic density. In addition, Article 6 of this law states that Lao citizens, apatrids, and foreign individuals who are commuting on the roads within the territory of the Lao PDR have obligations to respect and strictly adhere to this law and land traffic regulations.

3.4.2.9 Law on Multiple Transport No.28/NA, 2012

This law has the function of determining the rules, regulations and measures to allow, control, check and inspect businesses involved in all forms of transport including road, railway, river, and air between Lao PDR and other countries. This to ensure that multiple transport is modern, effective, sustainable and environmentally friendly as well as strengthen the capacity in the transport sector for regional and international integration. In addition, the obligations of the multiple transport operator described in Article 15 and 16 of this law, Article 5 determines the Principles on Multiple Transport as follows:

- ✓ To ensure relevance to the national socio-economic development plan as well as to ensure socio-economic effectiveness and environment protection;
- ✓ To ensure comfort, rapid service, safety, accountability, completeness, timeliness, justice and equality in the presence of the law;
- ✓ To ensure international standards are met by using the modern technology;
- ✓ To collaborate with the relevant sectors and local authorities in order to effectively manage, control, check and inspect the multiple transport sector.

3.4.2.10 Law on Rail No.62/NA, 2018

The following is applicable in terms of this law:

- ✓ Article 56: Operation of activities in the protected area of railway infrastructure: individuals, entities or organizations which develop near railway infrastructure shall ensure safety and avoidance of any impact on railway infrastructure and transport;
- ✓ Article 118: Reference is made to railway logistic areas which are governed by separate regulations.

3.4.2.11 Customs Law No.81/NA,2020

The Customs Law was promulgated in December 2011 and relates to the export-import, transit and movement and inspection of goods in order to comply with the Customs Law. Article 81 references operations within the Customs Territory stating that the customs operational territory is the control area of the Customs Authorities and can extend thirty kilometres from the border. If the customs office is established outside the operational territory, the operations shall cover ten kilometres around the customs office.

3.4.2.12 Law on Construction No.05/NA, 2009

All activities of a project shall comply with this law as described in:

- ✓ Article 5: construction's activities shall be performed to ensure the conformity with the national socio-economic development plan, master development plan, avoid adverse effects on the environment and avoid inconvenience to the persons living near to the construction site;
- ✓ Article 34: The promotion of construction safety relevant to the applicable sector is required. During any construction project execution if there is a force majeure that has arisen such as: floods, storm, fire, earthquake, soil collapse or other catastrophe that affect to the construction project operation, the contractor shall have measures of prevention and timely resolution.

3.4.2.13 Law on Public Roads No.03/NA, 2016

The Law on Public Roads describes the need for the management and monitoring of public road works in order to comply with the principles, regulations and technical standards. In addition, there shall be the maintenance and rehabilitation of public roads to ensure the quality, safety, environmental protection and effective traffic movements.

3.4.2.14 Law on Urban Planning No.072/NA, 2017

This Law provides principles, regulations, and measures for the management, monitoring and inspection of urban planning. In terms of this project, Article 59 on construction approval is relevant and stipulates that individuals, legal entities or organizations with the intention of construction shall submit documents to the Urban Planning Authority for the approval.

3.4.2.15 Law on Investment Promotion No.14/NA, 2016

The dry port transport operators in Lao PDR (by nationality) shall comply with the law on investment promotion. Article 4 states that the Government promotes investment in all sectors, business operations and in areas throughout the country except for the areas and business operations which are detrimental to national security, natural environment at present and in long-term, public health and fine national cultures.

3.4.2.16 Labor Law No.021/NA, 2013

This law is to protect and enhance the quality and productivity of work in society to ensure the transformation to modernization and industrialization aimed at safeguarding the rights of employees and employers. It highlights the need to establish employment contracts between employees and employers and avoid the use of forced labour. Preference should be given to local labour. Working hours shall comply with the national policy while contributing to the promotion of investment, national socio-economic development, and regional and international links. Article 51 stipulates that normal hours of work will be no more than six days per week and eight hours per day or no more than forty-eight hours per week and hours of rest for lunch break shall be no less than one hour.The determination of salaries or minimum wage shall comply with Article 108.

3.4.2.17 Law on Water and Water Resources No.23/NA,2017

This law determines the necessary principles, regulations, and measures relating to the administration, protection, use and development of water and water resources. It advocates for restoration and rehabilitation in the affected area in order to ensure quantity and quality as well as the sustainability of water use as described in Article 6 and Article 26 of chapter 4. Article 31 stipulates the need for the authorisation for the discharge of wastewater by the Department of Natural Resources and Environmental Division in accordance with the relevant standards.

3.4.2.18 Law on Hygiene, Disease Prevention and Health Promotion No.73/NA,2019

Projects shall comply with the regulations for hygiene, disease prevention and health promotion. With relevance to this project is Article 20 which stipulates that employers shall provide safety equipment to workers, and shall ensure the hygiene of working premises with sufficient light and air circulation, control, if required of, temperature, humidity, vibration, sound, smell and dust in line with the defined standards. Employees shall ensure health examinations and treatment in accordance with the provisions of the regulations, in particular, in sectors with activities that are hazardous to health.

3.4.2.19 Law on National Heritage No.138/PDR, 2005

The Law on National Heritage determines the principles, regulations and measures for the administration, use, protection, conservation, restoration, and rehabilitation of the national heritage. Article 33 states that individuals or organizations that, during the conduct of any activities, see any national heritage shall immediately report this finding to the local administrations and the concerned information and culture sector, and shall suspend such activities until approval for continuation is granted. Individuals or organisations that have discovered sites, received information on existing sites, or suspect that any item of national heritage or holy relic exists, shall immediately report this to the local administrations and the information culture and tourism sector, and shall be prohibited from exploring them prior to obtaining the approval of the information culture and tourism sector.

3.4.3 Lao Environmental Guidelines and Standards

3.4.3.1 Technical Guidelines on Compensation and Resettlement of People Affected by Development Project 2005

Pursuant to Prime Ministerial Decree No. 192/PM, the Government of Lao (GoL) endorsed the Technical Guidelines on Compensation and Resettlement of People Affected by Development Projects, first issued in November 2005. These guidelines adopted under the Decree 192 are currently under review and revision to be in line with the new Decree 84 and expected to be approved in 2022. In the meantime, the guidelines prepared under the Decree 192 remain applicable.

These guidelines include detailed procedures for the conduct of public consultation and other participatory processes, to inform affected people of the environmental and social impacts, and to assure their involvement in all aspects of the mitigation and compensation process, from planning to implementation.

3.4.3.2 Public Involvement Guideline 2013

The Public Involvement Guideline approved by Minister of MONRE in 2013 provides principles and process of engaging and consulting with project stakeholders and PAPs in project preparation, design and implementation. The public involvement aims to ensure that the stakeholders and PAPs are adequately consulted and provided with the opportunity to articulate their feedback and suggestions on project design and implementation to avoid or mitigate potential impacts on their livelihood and environment.

3.4.3.3 Guideline on Consultation with Ethnic Groups 2013

The guideline on Consultation with Ethnic Group launched by the Lao Front for National Construction (LFNC) in 2013 aims to a) ensure that the implementation of consultation with ethnic groups follows an effective process in line with the relevant national Laws and regulations, b) ensure that the right and lost assets of the ethnic people affected by development projects are fairly compensated by development projects, and c) to prevent or mitigate the potential environmental and social impacts on ethnic groups generated by development project and ensure that the project is properly designed for sustainability.

3.4.3.4 Agreement on the National Environmental Standard No.81/GO, 2017

This Agreement defined the National Environmental Standards as the basis for the environmental monitoring and pollution control on water, soil, air and noise. This agreement consists of six chapters and 18 articles which describes the details on environmental standard, emission standard, type of pollution, concentrations, parameters and concentration indicators. These are the standard for the pollution control emitted to the environment which might affect people, human and animal health and ecology from the development project of particular relevance for this project, are those standards provided in Annexure A.

3.5 ESIA Process in Laos

3.5.1 Development Procedure

The key government agency responsible for environmental and social assessment of the Project via the ESIA process is the MoNRE. The Decree on Environmental Impact Assessment (2019), the Technical Guidelines on ESIA (2017) and the Guideline on Public Involvement in the Environmental and Social Impact Assessment Process (2013) currently guides the environmental and social assessment process in Lao PDR.

The Agreement on the Endorsement and Promulgation of the List of Investment Projects and Activities Requiring the Conduct of Initial Environmental Examination or Environmental and Social Impact Assessment, NO.8056/MoNRE, dated 17 December 2013 categorised the list of investment projects and activities in terms of type and scale into two groups: Group 1 requiring the preparation of Initial Environmental Examination (IEE) and Group 2 requiring the preparation of environmental and social impact assessment (ESIA).

The proposed Thanaleng Dry Port and Vientiane Logistics Park Project is an investment project and activity under the infrastructure and service sector which has been categorized in Group 2. Therefore, the project is required to conduct a Environmental and Social Impact Assessment.

Figure 3.2 presents the process followed for environmental authorisation applications in Lao.

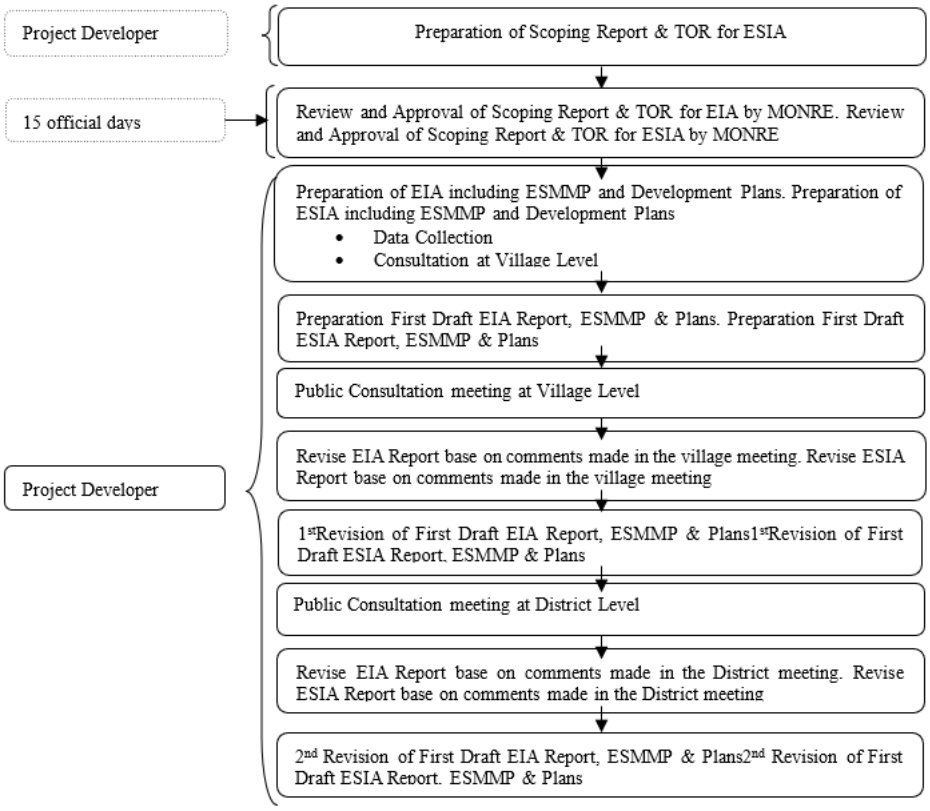


Figure 3.2: Process followed for environmental authorisation applications in Lao

3.5.2 Additional Project Permitting

There are further permissions that may be required for this project as detailed in Table 3.2.

Table 3.2: Further permits likely to be required for this project

#	Description	Permitting Authority
1	Water extraction	Ministry of Natural Resources and Environment
2	Borrow Pit	Ministry of Energy and Mines
3	Removal of Trees	Village authority & Agriculture and Forest Office
4	Development of Bridges and Access Roads	Department of Roads
5	Development of Buildings and Warehouses	Ministry of Public Work and Transportation
6	Powerlines	Electricité du Laos

3.6 International Requirements

In addition to the applicable host Country Laws, this ESIA Report presents the Project impacts and mitigation measures with explicit reference to the following international standards and guidelines:

- ✓ IFC Performance Standards - PS (2012);
- ✓ World Bank (WB) Group's Environmental Health and Safety (EHS) General Guidelines (April, 2007). This document covers four areas of international good practice, namely:
  - Environmental,
  - Occupational Health and Safety (OHS),
  - Community Health and Safety (CHS),
  - Construction and Decommissioning;
- ✓ World Bank (WB) Group's Industry Sector Guidelines and additional applicable international standards and guidelines:
  - Workers' accommodation: processes and standards, A guidance note by IFC and the EBRD, 2009,
  - Good Practice Handbook: Use of Security Forces: Assessing and Managing Risks and Impacts, IFC, 2017,
  - Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets, IFC, 2007,
  - Addressing Grievances from Project Affected Communities, IFC, 2009,
  - IFC Good Practice Note: Managing Risks Associated with Modern Slavery, 2018,
  - IFC Good Practice Note: Managing Contractors' Environmental and Social Performance, 2017,
  - IFC Addressing Gender-Based Violence and Harassment: Emerging Good Practice for the Private Sector 2020,
  - United Nations (UN) Voluntary Principles on Security and Human Rights.

3.6.1 International Finance Corporation Performance Standards (IFC PS)

The International Finance Corporation (IFC), a member of WB Group, has published the Performance Standards (PSs) on Environmental and Social Sustainability dated 2012 They include eight components, which provide guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable manner. The PS establishes standards that the client is to meet throughout the life of an investment. IFC PSs are listed below:

- ✓ PS 1: Assessment and Management of Environmental and Social Risks and Impacts;
- ✓ PS 2: Labor and Working Conditions;
- ✓ PS 3: Resource Efficiency and Pollution Prevention;
- ✓ PS 4: Community Health, Safety, and Security;
- ✓ PS 5: Land Acquisition and Involuntary Resettlement;
- ✓ PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ✓ PS 7: Indigenous Peoples; and
- ✓ PS 8: Cultural Heritage.

A brief description of each IFC PS is listed below:

- ✓ PS1: Assessment and Management of Social and Environmental Risks and Impacts. The Principle states the importance of managing environmental and social performance throughout the life of a project. PS 1 requires that a process of environmental and social assessment be followed and to establish and maintain an Environmental and Social Management System (ESMS), appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts. PS1 aims at:
  - identifying and evaluating environmental and social risks and impacts of the project,
  - adopting a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment,

- promoting improved environmental and social performance of clients through the effective use of management systems,
- ensuring that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately,
- promoting and providing means for adequate engagement with affected communities throughout the project cycle on issues that could potentially affect them, and
- ensuring that relevant environmental and social information is disclosed and disseminated;

✓ PS2: Labour and Working Conditions. The Principle recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by the protection of the fundamental rights of workers. PS2 aims at:

- promoting fair treatment, non-discrimination and equal opportunity of workers,
- establishing, maintaining and improving the worker-management relationship,
- promoting compliance with national employment and labour laws,
- protecting workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties and workers in the client's supply chain, and
- promoting safe and healthy working conditions and the health of workers; and avoiding the use of forced labour;

✓ PS3: Resource Efficiency and Pollution Prevention. The Principle recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels. Thus, PS3 aims at:

- avoiding or minimizing pollution from project activities,
- promoting more sustainable use of resources (including energy and water), and
- reducing project-related Greenhouse Gas (GHG) emissions;

✓ PS4: Community Health, Safety and Security. The Principle recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. PS4 aims at:

- anticipating and avoiding adverse impacts on the health and safety of affected communities during the project life from both routine and non-routine circumstances, and
- ensuring that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected communities;

✓ PS5: Land Acquisition and Involuntary Resettlement. The Principle recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. PS5 thus aims at:

- avoiding, and when avoidance is not possible, minimizing displacement by exploring alternative project designs,
- avoiding forced eviction,
- anticipating and avoiding, or where avoidance is not possible, minimizing adverse social and economic impacts from land acquisition or restrictions on land use 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, and
- improving or restoring, the livelihoods and standards of living of displaced persons;

✓ PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. The Principle recognizes that protecting and conserving biodiversity, maintaining ecosystem services and sustainably managing living natural resources are fundamental to sustainable development. PS6 aims at:

- protecting and conserving biodiversity,
- maintaining the benefits from ecosystem services, and
- promoting the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities;

- ✓ PS7: Indigenous Peoples. The Principle recognizes that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. PS7 thus aims at:
  - ensuring that the development process fosters full respect for human rights, dignity, aspirations, culture and natural resource-based livelihoods of Indigenous Peoples,
  - anticipating and avoiding adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, minimizing and/or compensating for such impacts,
  - promoting sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner,
  - establishing and maintaining an ongoing relationship based on informed consultation and participation with the Indigenous Peoples affected by a project throughout the project's life-cycle,
  - ensuring the Free, Prior and Informed Consent of the affected communities of Indigenous Peoples when the circumstances described in this Performance Standard are present, and
  - respecting and preserving the culture, knowledge and practices of Indigenous People;
- ✓ PS8: Cultural Heritage. The Principle recognizes the importance of cultural heritage for current and future generations. As such, PS8 aims at:
  - protecting cultural heritage from the adverse impacts of project activities and supporting its preservation, and
  - promoting the equitable sharing of benefits from the use of cultural heritage.

To summarise the applicability of these PSs to the Project:

- ✓ IFC PS 1, 2, 3, 4, 5, 6 and 8 have been identified as being applicable to the Project. As such, the Project Proponent must develop the Project in alignment with the identified IFC PS, which has been used to inform this Supplementary ESIA. IFC PSs are in turn supported by Guidance Notes that provide guidance on the requirements contained in the standards and on good sustainability practices to help clients improve project performance.

3.6.2 World Bank Group Environmental, Health, and Safety Guidelines

The WB Group General EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP) and are referred to in the World Bank's Environmental and Social Framework and in IFC's Performance Standards.

The General EHS Guidelines are designed to be used together with the relevant industry sector EHS guidelines that provide guidance to users on EHS issues in specific industry sectors. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent.

As there are no industry specific EHS Guidelines for a Dry Port project, General EHS Guidelines prevailed in addition to EHS activity specific guidelines applicable to the Project. The contents of the general and specific EHS Guidelines, as well applicable international standards will be described in the following sections.

3.6.2.1 WB Group General EHS Guidelines

The General EHS Guidelines are organized as reported in the following Table.

Table 3.3: Organization of the WB Group General EHS Guidelines

Main Area	Topic
Environmental	✓ Air Emissions and Ambient Air Quality; ✓ Energy Conservation; ✓ Wastewater and Ambient Water Quality; ✓ Water Conservation; ✓ Hazardous Materials Management; ✓ Waste Management; ✓ Noise; ✓ Contaminated Land.
Occupational Health and Safety	✓ General Facility Design and Operation; ✓ Communication and Training; ✓ Physical Hazards; ✓ Chemical Hazards; ✓ Biological Hazards; ✓ Radiological Hazards; ✓ Personal Protective Equipment (PPE); ✓ Special Hazard Environments; ✓ Monitoring.
Community Health and Safety	✓ Water Quality and Availability; ✓ Structural Safety of Project Infrastructure; ✓ Life and Fire Safety; ✓ Traffic Safety; ✓ Transport of Hazardous Materials; ✓ Disease Prevention; ✓ Emergency Preparedness and Response.
Construction and Decommissioning	✓ Environment; ✓ Occupational Health & Safety; ✓ Community Health & Safety.

The IFC Guidelines also refer to the World Health Organization (WHO) standards that include the following:

- ✓ WHO Ambient Air Quality Standards;
- ✓ WHO Guidelines for Community Noise;
- ✓ WHO Drinking Water Quality; and
- ✓ WHO Guidelines for the Safe Use of Wastewater, Excreta and Greywater.

In the following sections guidelines values applicable to the Project are summarized.

3.6.2.1.1 *Air Emissions and Ambient Air Quality*

According to IFC requirements, air emissions should not result in pollutant concentrations higher than the relevant national ambient quality guidelines and standards. In their absence, the current WHO Air Quality Guidelines or

other internationally recognized sources, such as the United State Environmental Protection Agency (US EPA), National Ambient Air Quality Standards (NAAQS) and the relevant European Council Directives can be also referred to.

In the following Table, Ambient Air Quality values outlined in the General EHS Guidelines are reported.

Table 3.4: Ambient Air Quality Values - WB Group General EHS Guidelines

WHO Ambient Air Quality Guidelines [1, 2]		
Pollutant	**Averaging Period**	**Guideline Value (µg/m³)**
Sulphur Dioxide (SO_2)	24 hours	125 (Interim target-1) 50 (interim taget-2) 20 guideline
	10 min	500 (guideline)
Nitrogen Dioxide (NO_2)	1-year	40 (guideline)
	1 hour	200 (guideline)
Particular Matter <10 µm (PM_{10})	1-year	70 (interim target-1) 50 (interim target-2) 30 (interim target-3) 20 (guideline)
	24 hours	150 (interim target-1) 100 (interim target-2) 75 (interim target -3) 50 (guideline)
Particular Matter <2.5 µm ($PM_{2.5}$)	1-year	35 (interim target-1) 25 (interim target-2) 15 (interim target-3) 10 (guideline)
	24 hours	75 (interim target-1) 50 (interim target-2) 37.5 (interim target -3) 25 (guideline)
Ozone (O_3)	8 hours daily maximum	160 (interim target-1) 100 (guideline)

Notes:

1. World Health Organization (WHO). Air Quality Guidelines Global Update, 2005. PM 24-hour value is the 99th percentile.
2. Interim targets are provided in recognition of the need for a staged approach to achieving the recommended guidelines.

In addition, the EHS General Guidelines require as a general rule that project emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards. The guideline suggests that specific ground concentration does not contribute more than 25% of the above-mentioned applicable air quality standard to allow additional, future sustainable development in the same airshed[1].

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[1] US EPA Prevention of Significant Deterioration Increments Limits applicable to non-degraded airsheds.

Facilities or projects located within poor quality airsheds[2], and within or next to areas established as ecologically sensitive (e.g. national parks), should ensure that any increase in pollution levels is as small as feasible, and amounts to a fraction of the applicable short-term and annual average air quality guidelines or standards as established in the project-specific environmental assessment.

Emissions and air quality monitoring programs provide information that can be used to assess the effectiveness of emissions management strategies. The air quality monitoring program should consider the following elements:

- ✓ Monitoring parameters: the monitoring parameters selected should reflect the pollutants of concern associated with project processes (for example sulphur content of fuel for combustion processes);
- ✓ Baseline calculations: before a project is developed, baseline air quality monitoring at and in the vicinity of the site should be undertaken to assess background levels of key pollutants;
- ✓ Monitoring type and frequency: data on emissions and ambient air quality generated through the monitoring program should be representative of the emissions discharged by the project over time (emissions from highly variable processes may need to be sampled more frequently or through composite methods. Monitoring frequency and duration may also range from continuous to less frequent, monthly, quarterly or yearly stack tests);
- ✓ Monitoring locations: ambient air quality monitoring may consist of off-site or fence line monitoring. The location should be established based on the results of scientific methods and mathematical taking into consideration location of potentially affected communities and prevailing wind directions; and
- ✓ Sampling and analysis methods: monitoring programs should apply national or international methods for sample collection and analysis, such as those published by the International Organization for Standardization, (ISO), the European Committee for Standardization, or the U.S. Environmental Protection Agency. Sampling should be conducted by, or under, the supervision of trained individuals. Analysis should be conducted by entities permitted or certified for this purpose. Sampling and analysis Quality Assurance / Quality Control (QA/QC) plans should be applied and documented (e.g. method detection limits are below levels of concern). QA/QC documentation should be included in monitoring reports.

3.6.2.1.2 *Wastewater and Ambient Water Quality*

Discharges of process wastewater, sanitary wastewater, wastewater from utility operations or storm water to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality. Receiving water use and assimilative capacity, taking other sources of discharges to the receiving water into consideration, should also influence the acceptable pollution loadings and effluent discharge quality.

Additional considerations that should be included setting project-specific performance levels for wastewater effluents include: (i) process wastewater treatment standards should be consistent with applicable Industry Sector EHS Guidelines or in case there are no industry-specific guidelines should reference the effluent quality guidelines of an industry sector with suitably analogous processes effluents; (ii) temperature of wastewater prior to discharge should not result in an increase greater than 3°C of ambient temperature at the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use and assimilative capacity among other considerations and (iii) if discharges are to surface water bodies the treatment has to meet national or local standards for sanitary wastewater discharges or, in their absence, the indicative guideline values applicable to sanitary wastewater discharges shown in the Table 3.5 below[3].

Table 3.5: Indicative Values for Treated Sanitary Sewage Discharges - WB Group General EHS Guidelines

Pollutants	Units	Guideline Value [1]
pH	pHl	6-9
BOD	mg/l	30

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[2] An airshed should be considered as having poor air quality if nationally legislated air quality standards or WHO Air Quality Guidelines are exceeded significantly.

[3] IFC Environmental, Health, and Safety (EHS) Guidelines General EHS Guidelines: Environmental wastewater and ambient water quality

Pollutants	Units	Guideline Value [1]
COD	mg/l	125
Total nitrogen	mg/	10
Total phosphorus	mg/l	2
Oil & Grease	mg/l	10
Total Suspended Solids (TSS)	mg/l	50
Total Coliform bacteria	MPN [(2)] /100 ml	400

Notes:

1. Not applicable to centralized, municipal, wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.
2. MPN = Most Probable Number

Industrial wastewater generated from industrial operations includes water ponded in the quarry pit(s), runoff from process and materials staging areas, and miscellaneous activities including wastewater from laboratories, equipment maintenance shops, etc. The quality of treated wastewater or stormwater discharged on land, including wetlands, should be established based on local regulatory requirements. Where land is used as part of the treatment system and the ultimate receptor is surface water, water quality guidelines for surface water discharges specific to the industry sector process should apply.

Septic systems are commonly used for treatment and disposal of domestic sanitary sewage in areas with no sewerage collection networks, Septic systems should only be used for treatment of sanitary sewage, and unsuitable for industrial wastewater treatment.

A wastewater and water quality monitoring program with adequate resources and management oversight should be developed and implemented to meet the objective(s) of the monitoring program:

- ✓ monitoring parameters: the parameters selected for monitoring should be indicative of the pollutants of concern from the process, and should include parameters that are regulated under compliance requirements;
- ✓ monitoring type and frequency: wastewater monitoring should take into consideration the discharge characteristics from the process over time (for example effluents from highly variable processes may need to be sampled more frequently or through composite methods, so monitoring is more complex than monitoring of continuous discharges);
- ✓ monitoring locations: the monitoring location should be selected with the objective of providing representative monitoring data and without dilution prior or after treatment. Effluent sampling stations may be located at the final discharge point, as well as at strategic upstream points prior to merging of different discharges;
- ✓ data quality: monitoring programs should apply internationally approved methods for sample collection, preservation and analysis. Sampling should be conducted by or under the supervision of trained individuals. Analysis should be conducted by entities permitted or certified for this purpose. Sampling and analysis QA/QC plans should be prepared and, implemented. QA/QC documentation should be included in monitoring reports.

3.6.2.1.3 *Waste Management*

Waste management should be addressed through a waste management system that addresses issues linked to waste minimization, generation, transport, disposal, and monitoring.

In general, facilities that generate and store wastes should practice the following:

- ✓ establishing waste management priorities at the outset of activities based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences;
- ✓ establishing a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes;

- ✓ avoiding or minimizing the generation waste materials, as far as practicable · Where waste generation cannot be avoided but has been minimized, recovering and reusing waste Where waste cannot be recovered or reused, treating, destroying, and disposing of it in an environmentally sound manner.

3.6.2.1.4 *Contaminated Land*

Land is considered contaminated when it contains hazardous materials or oil concentrations above ecological and human health risk based screening levels identified for the project or naturally occurring levels. Contaminated lands may involve surficial soils or subsurface soils that, through leaching and transport, may affect groundwater, surface water, and adjacent sites. Where subsurface contaminant sources include volatile substances, soil vapor may also become a transport and exposure medium and create potential for contaminant infiltration of indoor air spaces of buildings. Contamination of land should be avoided by preventing or controlling the release of hazardous materials, hazardous waste, or oil to the environment. When contamination of land is suspected or confirmed during any project phase, the cause of the uncontrolled release should be identified and corrected to avoid further releases and associated adverse impacts. Contaminated lands should be managed to avoid the risk to human health and ecological receptors. The preferred strategy for land decontamination is to reduce the level of contamination at the site while preventing the human exposure to contamination.

3.6.2.1.5 *Occupational and Community Health and Safety*

With respect to the Occupational Health and Safety (OHS) field, the General EHS Guidelines state that employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. The guidelines provide guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. Although, the focus is placed on the operational phase of projects, much of the guidance also applies to construction and decommissioning activities.

Table 3.6 provides IFC noise limits for different working environments.

Table 3.6: Noise Limits for Different Working Environments - WB Group General EHS Guidelines

Noise Limits for Various Working Environments[4]		
	One Hour L_{Aeq} (dBA)	
Receptor	**Daytime 07:00 - 22:00**	**Nighttime 22:00 - 07:00**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Exposure to hand-arm vibration from equipment such as hand and power tools, or whole-body vibrations from surfaces on which the worker stands or sits, should be controlled through choice of equipment, installation of vibration dampening pads or devices, and limiting the duration of exposure. Limits for vibration and action values, (i.e. the level of exposure at which remediation should be initiated) are provided by the American Conference of Governmental Industrial Hygienists (ACGIH). Exposure levels should be checked on the basis of daily exposure time and data provided by equipment manufacturers.

Air quality is recommended to be maintained at levels of contaminant dusts, vapors and gases in the work environment at concentrations below those recommended by the ACGIH (2005) as TWA-TLV's (threshold limit value)—concentrations to which most workers can be exposed repeatedly (8 hours/day, 40 hrs/week, week-afterweek), without sustaining adverse health effects.

The General EHS Guidelines on Community Health and Safety complement the guidance provided for the environmental and occupational health and safety topics, specifically addressing some aspects of project activities taking place outside of the project boundaries, but nonetheless related to the project operations.

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[4] Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999

3.6.2.2 EHS Guidelines for Electric Power Transmission and Distribution

These Guidelines include information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas.

Table 3.7 lists exposure limits for general public exposure to electric and magnetic fields published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

Table 3.7: ICNIRP Exposure Limits for General Public Exposure to Electric and Magnetic Fields

Frequency	✓ Electric Field (V/m	✓ Magnetic Field (μT)
50 Hz	✓ 5000	✓ 100
60 Hz	✓ 4150	✓ 83
Source: ICNIRP (1998): "Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz).		

Additional indicators specifically applicable to electric power transmission and distribution activities include the minimum safe working distances for trained employees listed in Table 3.8 and the ICNIRP exposure limits for occupational exposure to electric and magnetic fields listed in

Table 3.9.

Table 3.8: Alternating Current - Minimum Working Distances for Trained Employees [a]

Voltage Range (Phase to Phase - Kilovolts)	Minimum Working and Clear Hot Stick Distance (Meters)
2.1 to 15	0.6
15.1 to 35	0.71
35.1 to 46	0.76
46.1 to 72.5	0.91
72.6 to 121	1.01
138 to 145	1.06
161 to 169	1.11
230 to 242	1.5
345 to 362	2.13 [b]
500 to 552	3.35 [b]
700 to 765	4.5 [b]
60 Hz	4150

Notes:

1. OSHA.
2. NOTE: From 345-362 kv., 500-552 kv., and 700-765 kv., the minimum working distance and the minimum clear hot stick distance may be reduced provided that such distances are not less than the shortest distance between the energized part and a grounded surface.

Table 3.9: ICNIRP exposure limits for occupational exposure to electric and magnetic fields

Frequency	✓ Electric Field (V/m	✓ Magnetic Field (μT)
50 Hz	✓ 10000	✓ 500
60 Hz	✓ 8300	✓ 415

Source: ICNIRP (1998) : "Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz).

3.6.3 International Laws and Conventions

The non-exhaustive list of regional and international conventions, agreements or treaties ratified by Laos and relevant to the Project is as detailed in Table 3.10.

Table 3.10: International Conventions, Agreements and Treaties ratified by Lao

International Conventions and Treaties	Date of Ratification (status)
United Nations Framework Convention on Climate Change (UNFCCC)	4 April 1995 (Accession)
Kyoto Protocol to UNFCCC	6 February 2003 (accession)
Paris Agreement on Climate Change	7 September 2016 (ratification)
Montreal Protocol on Substances that Deplete the Ozone Layer (with London, Copenhagen, Montreal amendments)	21 August 1998 (accession)
Vienna Convention for the Protection of the Ozone Layer	21 August 1998 (accession)
Ramsar Convention on Wetlands of International Importance Especially as Wildlife Habitat	28 May 2010 (accession)
Cartagena Protocol on Biosafety	3 August 2004 (accession)
United Nations Convention on Biological Diversity (Rio Convention)	19 December 1996 (accession)
Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora (Washington Convention)	30 May 2004 (accession)
Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity	26 September 2012 (accession)
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade)	21 September 2010 (accession)
Stockholm Convention on Persistent Organic Pollutants	28 Jun 2006 (ratification)
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	21 September 2010 (accession)
United Nations Convention to Combat Desertification	20 September 1996 (acceptance)
Paris Convention on Protection of the World Cultural and Natural Heritage	20 June 1987 (ratification)
Convention for the Safeguarding of the Intangible Cultural Heritage	26 November 2009 (ratification)
Minamata Convention on Mercury	21 September 2017 (accession)
United Nations Convention on the Law of the Sea (UNCLOS)	5 June 1998 (ratification)

4 PROJECT DESCRIPTION

The Thanaleng Dry Port (the Project), located in Vientiane, the capital of Laos, is to be developed by Sitthi Logistics ("STL").

Granted under a 50 year concession by the Lao government in early 2019, the area of the Dry Port (object of the present report) is 55 hectares. The Dry Port itself comprises of three main functional areas:

- ✓ truck arrivals/departures area (Access Road or Road B);
- ✓ customs and container freight station (Office Zone and CFS); and
- ✓ container yard area (CY).

The main functional areas of the Project are presented in the figure below.

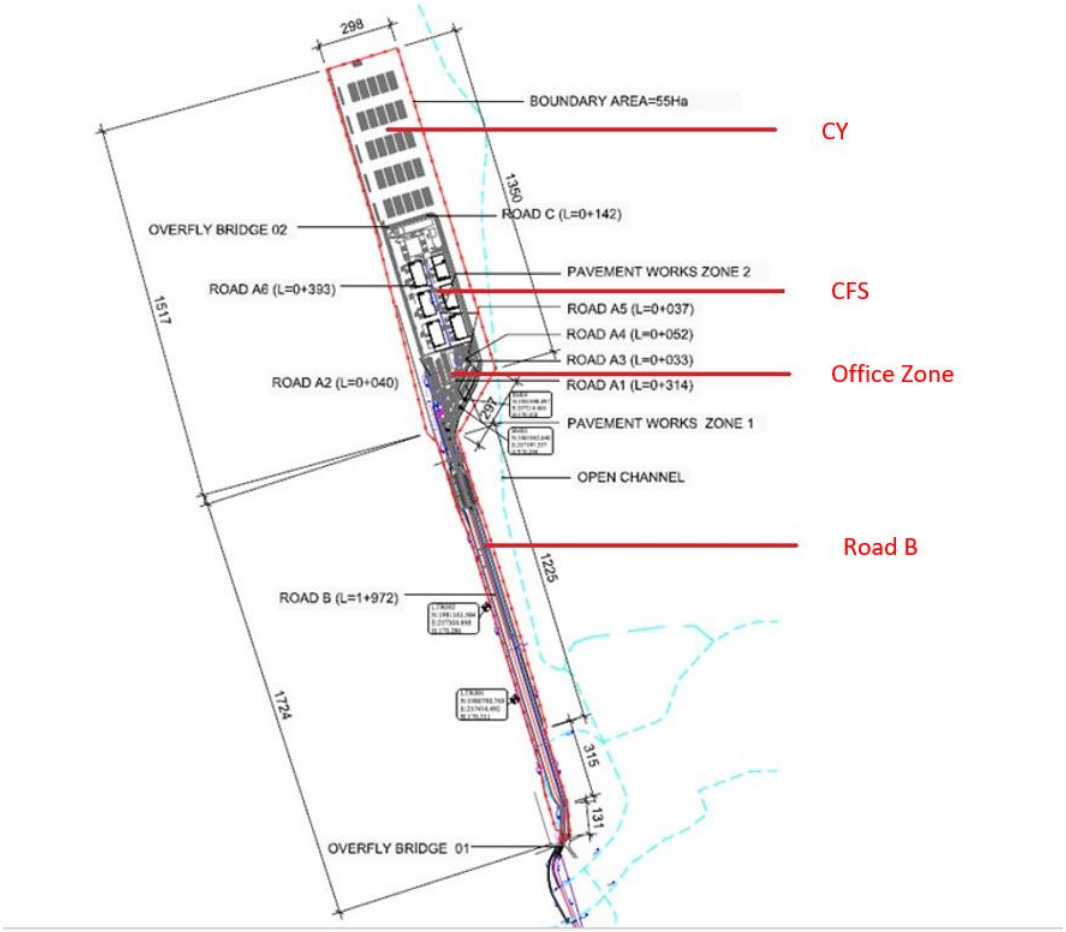


Figure 4.1: General Project Layout

In addition, infrastructures and services supporting the Dry Port facility are:

- ✓ an access road (Road A);
- ✓ 22 kV transmission line (1.6 km connecting the Dong Poxy substation with the Project);
- ✓ Municipal water supply;
- ✓ Septic tanks for the construction and operational phases of the Project;
- ✓ Waste storage and removal for both phase of the Project.

From the list above, none of this additional infrastructure is considered to be an associated facility as:

- ✓ Road A which is a link road that has been developed between Friendship Bridge and the Access Road for the Dry Port is financed by the Project;
- ✓ The 22 kV transmission line to provide electricity to the Dry Port was developed in advance of the project development with the intention of supporting the pre-existing Container Yard.

4.1 Need for the Project (Motivation for the Project)

Being called a "land-locked country" is usually used to represent Lao PDR's logistics backwardness, resulting from its geographical disadvantage (long distance from/to international market) as well as high logistics cost. Along with the promotion of accelerating regional integration, such as the fulfillment of the Association of Southeast Asian Nations (ASEAN) Economic Community (AEC) in 2015, smoother and more efficient logistics services will be demanded to realize a speedy physical distribution across the region.

The volume of import and export cargo in Vientiane, similar to the Laos national logistics, is increasing because of an increase in commodity demand due to continued economic growth. In this regard, about half of the import cargo in Laos passes through the First Friendship Bridge (at border between Laos and Thailand) and thus the logistics in Vientiane capital mainly focuses on import cargo. It is foreseen that the flow rate of import cargo will gradually increase due to sustainable economic growth and urbanization in the future. The current increase in cargo volume has resulted in the Thanaleng Warehouse (located approximately 500 m east of the First Friendship Bridge) operating above-capacity in terms of managing cargo imports.

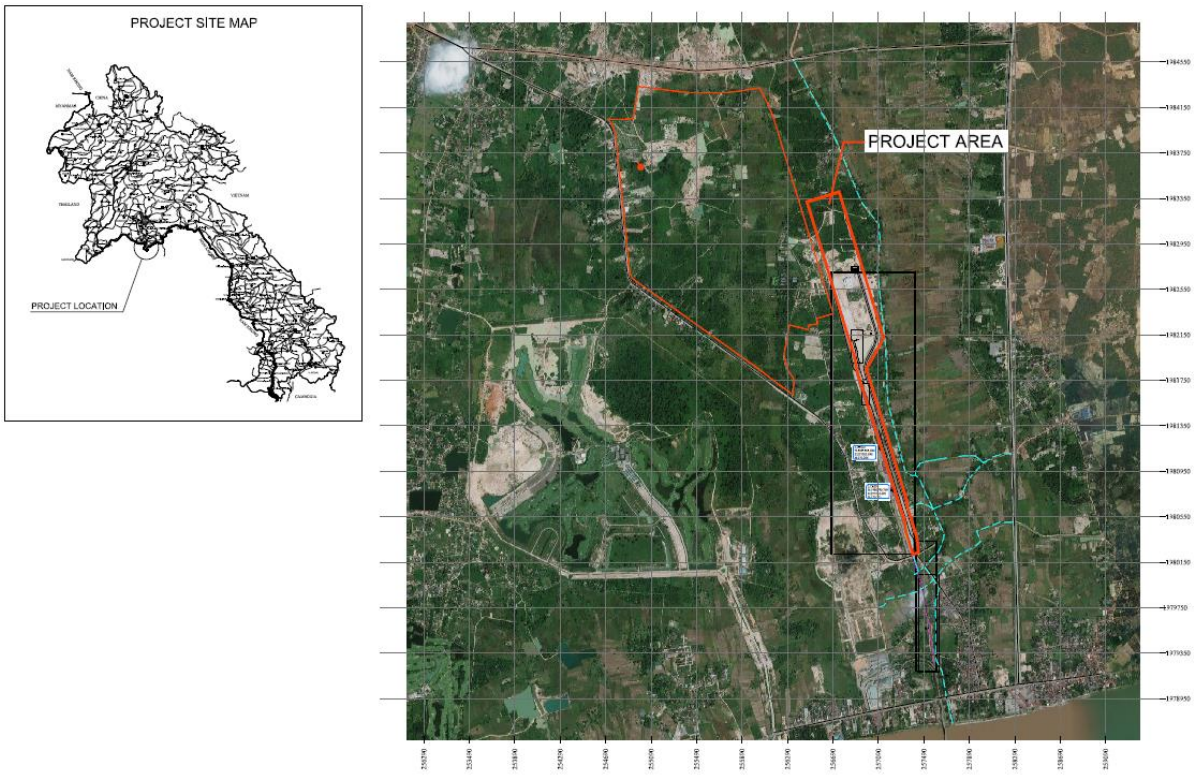
The purpose of the Thanaleng Dry Port is to provide comprehensive and advanced logistics services that will meet international standards while upgrading the current Thanaleng Warehouse function as an international gateway of the Vientiane area. In this regard the Thanaleng Dry Port is strategically located in Thanaleng district, 15 km East from downtown Vientiane, in proximity to the main trading corridor between Thailand and Laos (the Thai-Lao Friendship Bridge). Upcoming connections to the port include the Laos-China rail (2021 COD) and PTLH's Vietnam-Laos railway project that will link with the nation's future premier seaport, Vung Ang. There are four countries that will be linked through the Thanaleng Dry Port, namely; Laos, Thailand, China and Vietnam. Cargo transported between Laos and China, Laos and Vietnam, and China and Thailand will be transported by rail. Cargo transported between Laos and Thailand will be transported by either road or rail.

Through this project, the Dry Port aims to meet the following objectives:

- ✓ The Laos Government will benefit in terms of duty/tax collection, cargo management and trade statistics;
- ✓ Users can enjoy quality services which, up to now, have not been provided in Lao PDR.

4.2 Project Location

The Thanaleng Dry Port is located approximately 15 km east from downtown Vientiane. To its immediate south is the Nong Khai Municipality of Thailand and as such Thanaleng has traditionally been a strategic crossing point between the two countries. In 1993, Friendship Bridge was developed between the two countries holding a strategic position as an international cross border point. The main gate of the Dry Port is located approximately 3.2 km north of the Mekong river and Friendship Bridge.



Source: Project Layout. 2021. Realised by PISECCON (Lao) sole co., ltd for VLP

Figure 4.2: Project Location

Main transportation routes in the vicinity of the Dry Port are the Vientiane 450 year road which runs between the border and Vientiane Capital, and Thadeua Road running to the south of the site along the Mekong River, also linking up with Friendship Bridge. The Dry Port itself will be connected with the main existing road network via a new connection road (approximately 1 Km length) joining the Dry Port access road and Thadeua Road.

The Project is adjacent to the villages of Dongphosy, Dongphonhae, Thanaleng and Nakhuaytai. The villages are situated as follows from the Dry Port:

Distance in Km	From Dry Port center to village center	From Dry Port outer boundaries to Village Center	From Dry Port outer boundaries to Village Outer Boundary	Dry Port outer boundaries Direction
Dongphosy	3.00	1.3	0.30	South
Dongphonhae	1.50	1.40	0.80	East
Thanaleng	3.5	1.50	1.2	South
Nakhuaytai	4.50	2.80	1.70	North

The Dry Port was developed around the existing Container Yard (CY) which was realized following the inauguration of the Thanaleng railway station (2009) that became the first railway station in Laos PDR. The Thanaleng railway station is located on the western side of the access road approximately 1 Km South of the main gate of the Dry Port.

On the north-western boundary of the Dry Port is the proposed Vientiane Logistic Park (VLP) which is seen as a supporting development to the Dry Port.

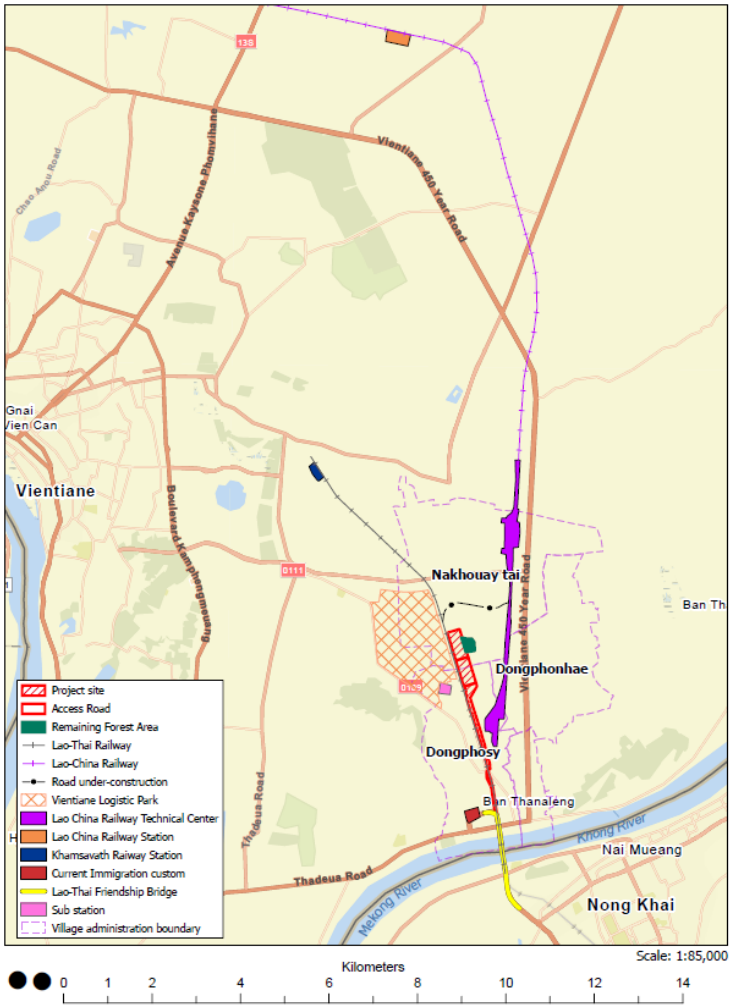


Figure 4.3: Project Location Relative to Surrounding Landuses

4.3 Dry Port Infrastructure and Layout

The layout of the Dry Port has been developed to support the functions that it is offering:

- ✓ Providing connectivity between the Lao-China railway and Thailand in terms of import-export and facilitating goods transport through Thailand, China and Vietnam;
- ✓ Consolidate cargos to service the provinces in the northern and central parts of Laos;
- ✓ Facilitate the registration of cargo and offer a handling service, and
- ✓ Allow for cross docking and packaging.

The Thanaleng Dry Port area, is thus divided into the following functional areas:

- ✓ Road B or Access Road – the main access road (in and out) of the Dry Port which is approximately 1.7 km in length and includes a fly-over bridge above the existing Lao-Thai railway. The access road provides domestic lanes (for trucks delivering and receiving cargo for Laos based clients) and international lanes (for trucks travelling to and from Thailand);
- ✓ Internal/Office Zone – this area serves and administrative and support function. It includes the Main Gate, Offices (including custom offices), 5 Shophouses, Canteen and 2 Hotels. The customs facility includes warehouses for physical inspections of containers and storage space for confiscated goods;
- ✓ Bonded Zone/Container Feight Station (CFS) – the purpose of this area is for the consolidation and deconsolidation of freight shipments. This area includes 6 warehouse buildings (5,000 m^2 each), an existing Warehouse, Railway operation office, Internal roads and Parking areas and a second fly-over bridge joining the Dry Port with the planned Logistic Park;
- ✓ Container Yard/ Rubber Tyred Gantries Cranes (RTGs) container yard – a new paved area (16.7 ha).Tthis area is where all laden containers, whether arriving by truck or by train, are temporarily stored before being collected for delivery to the end client. All containers are handled using rubber tyred gantries cranes. Empty containers are stored in blocks and handled using empty container handlers (ECHs).

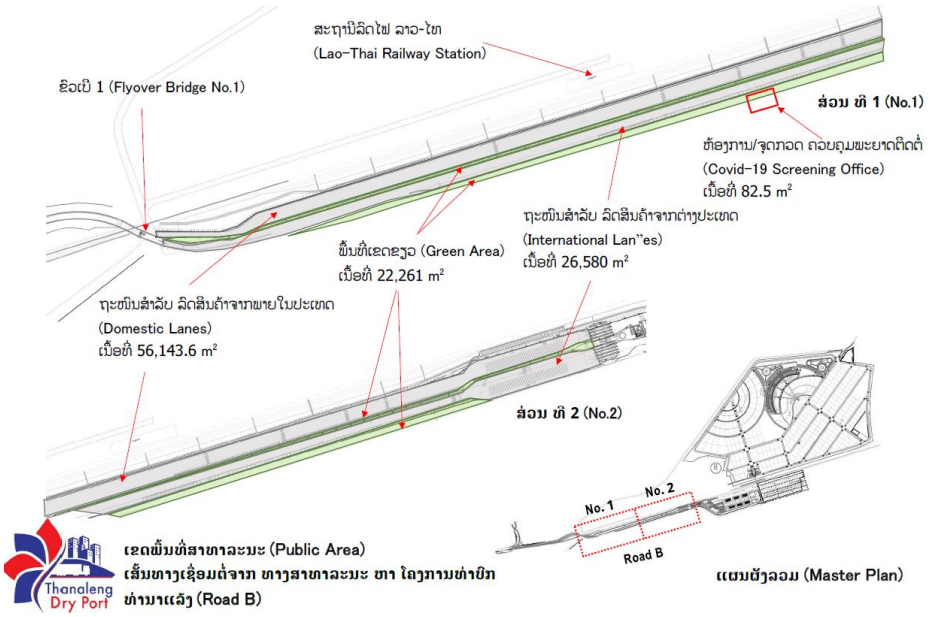
These areas are described in more detail below.

4.3.1 Access Road (Road B)

This is the main access road (approximately 1,9 km), laid parallel to the Lao-Thai railway, with two to six lanes (8-26 m) between the fly-over Thanaleng Railway Bridge and the Dry Port Gates.

At the northern end of the access road, there are separate in- and out-gates for international trucks (i.e. trucks

travelling to and from Thailand) and domestic trucks (i.e. trucks delivering and receiving cargo for Laos based clients) at the entrance to the Dry Port.



Source: Dry Port Area. 2021. Provided by VLP

Figure 4.4: Project Layout – "Road B" Access Road

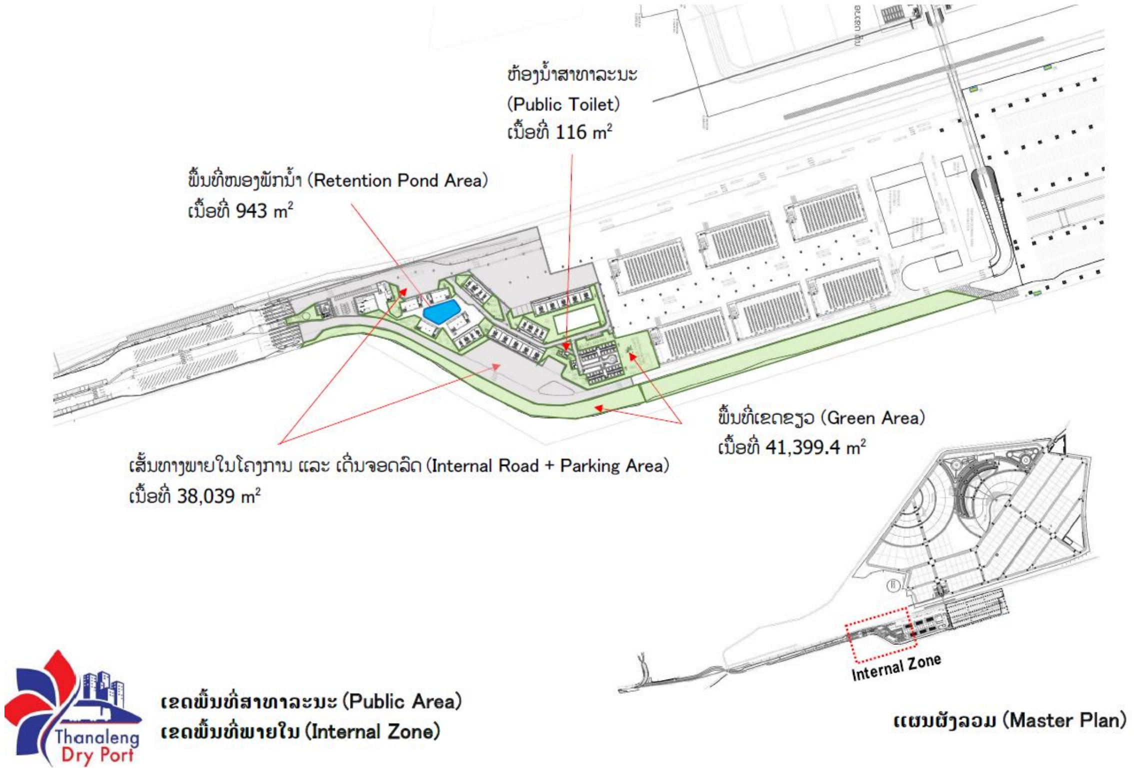
4.3.2 Internal Zone (Office Zone)

In this area are located the main gates to the Dry Port, administrative offices, customs facilities including custom offices, weighbridges area and x-ray scanners to allow for quick checking of containers. The customs facility also includes warehouses for physical inspections of containers and storage space for confiscated goods.

In this area are also located a trucks parking area, public toilets, two buildings for accommodation, a canteen, a coffee shop, the water supply station and the retention pond for collected waste water.

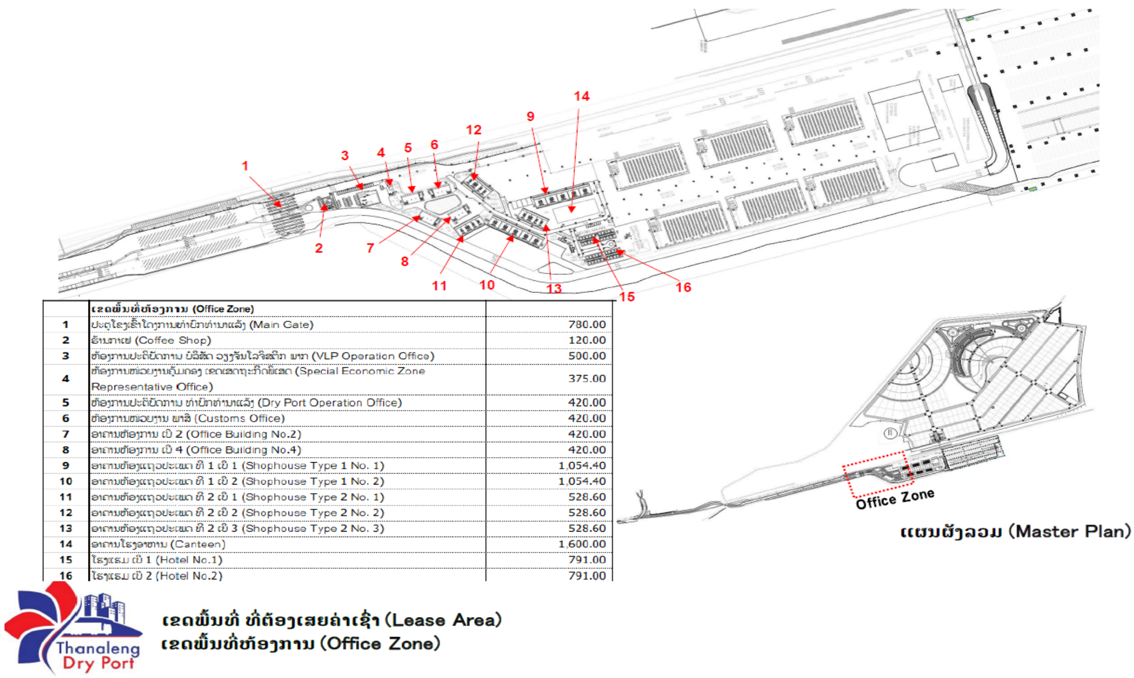
In detail the main buildings present in the area are:

- ✓ One canteen;
- ✓ Two motel buildings;
- ✓ One building housing public toilets;
- ✓ Five shop houses;
- ✓ Six office buildings.



Source: Dry Port Area. 2021. Provided by VLP

Figure 4.5: Project Layout – Internal Zone or Office Zone



Source: Dry Port Area. 2021. Provided by VLP

Figure 4.6: Project Layout – Internal Zone or Office Zone – Main Facilities

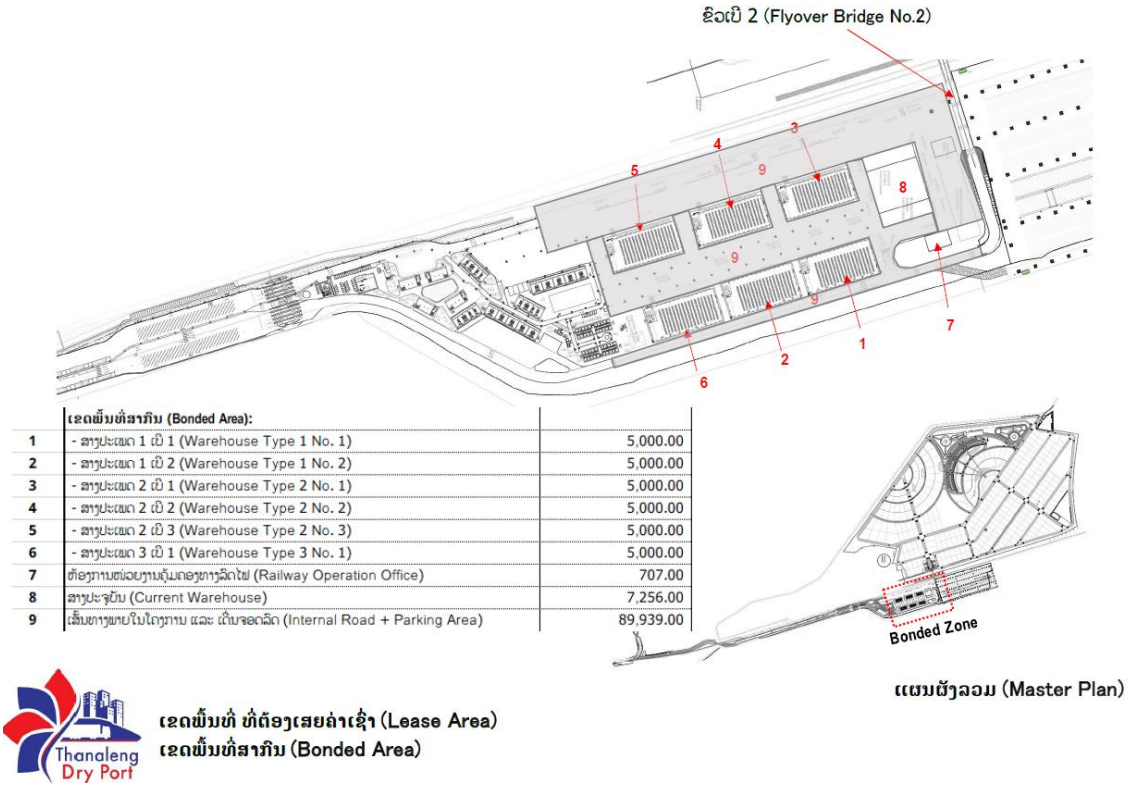
4.3.3 Bonded Area (CFS)

This area, also called Container Freight Station (CFS) consists of warehouses for consolidating or deconsolidating freight shipments. Office space is provided adjacent to the warehouses for CFS and Customs employees.

In particular in this area are present six warehouses:

- ✓ No. 2 Ware House Type 01 (50 m x 100 m), 1 storey, 17 m high;
- ✓ No. 1 Ware House Type 02 (50 m x 100 m), 1 storey, 17 m high;
- ✓ No. 3 Ware House Type 03 (50 m x 100 m), 1 storey, 17 m high.

This area is dedicated to the cargo transshipment from one vehicle to another particularly: the transport trucks entering the Dry Port that are required to transit to another transport truck in the Dry Port. In this area are located Temperature Controlled Warehouse, General Warehouse and Tennant Warehouse. Prior to the storage of goods in the warehouse, there shall be a quality inspection including live animals, food, medicine, toxic materials, chemical and hazardous materials. In this area are also located a Refrigerated Container Area, located the existing Container Yard area and the existing warehouse. At the eastern side of this area is the second fly-over bridge (Fly-over bridge No.2) connecting the Dry Port area with the planned Logistic Park.



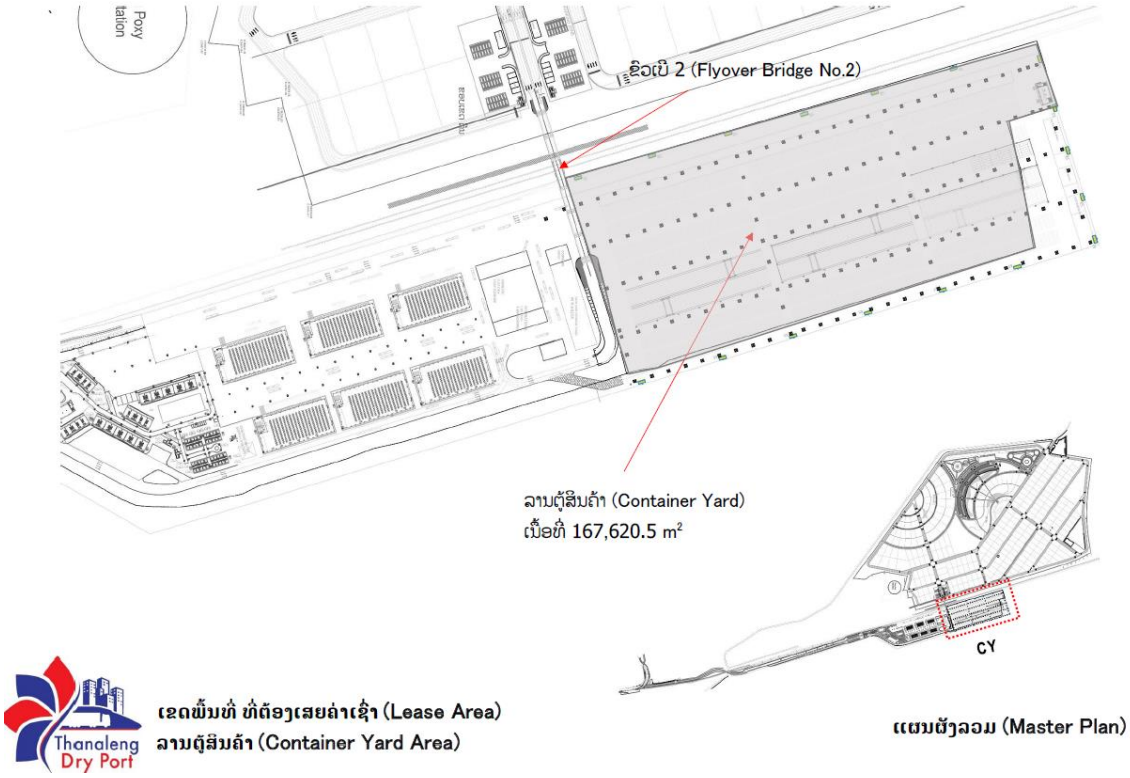
	ເຂດພື້ນທີ່ສາກົນ (Bonded Area):	
1	- ສາງປະເພດ 1 ເບີ 1 (Warehouse Type 1 No. 1)	5,000.00
2	- ສາງປະເພດ 1 ເບີ 2 (Warehouse Type 1 No. 2)	5,000.00
3	- ສາງປະເພດ 2 ເບີ 1 (Warehouse Type 2 No. 1)	5,000.00
4	- ສາງປະເພດ 2 ເບີ 2 (Warehouse Type 2 No. 2)	5,000.00
5	- ສາງປະເພດ 2 ເບີ 3 (Warehouse Type 2 No. 3)	5,000.00
6	- ສາງປະເພດ 3 ເບີ 1 (Warehouse Type 3 No. 1)	5,000.00
7	ຫ້ອງການໜ່ວຍງານຄຸ້ມຄອງທາງລົດໄຟ (Railway Operation Office)	707.00
8	ສາງປະຈຸບັນ (Current Warehouse)	7,256.00
9	ເສັ້ນທາງພາຍໃນໂຄງການ ແລະ ເດີ່ນຈອດລົດ (Internal Road + Parking Area)	89,939.00

Source: Dry Port Area. 2021. Provided by VLP

Figure 4.7: Project Layout – Bonded Area (CFS) – Main Facilities

4.3.4 Container Yard (CY) area

Also called RTG Container Yard, the CY is a newly paved area where all laden containers, whether arriving by truck or by train, are temporarily stored before being collected for delivery to the end client. The RTG container yard also includes dedicated reefer (refrigerated) storage areas with electrical connection points. All containers are handled using rubber tyred gantries (RTGs). Empty containers are stored in blocks and handled using empty container handlers (ECHs).



Source: Dry Port Area. 2021. Provided by VLP

Figure 4.8: Project Layout – Container Yard (CY) Area – Main Facilities

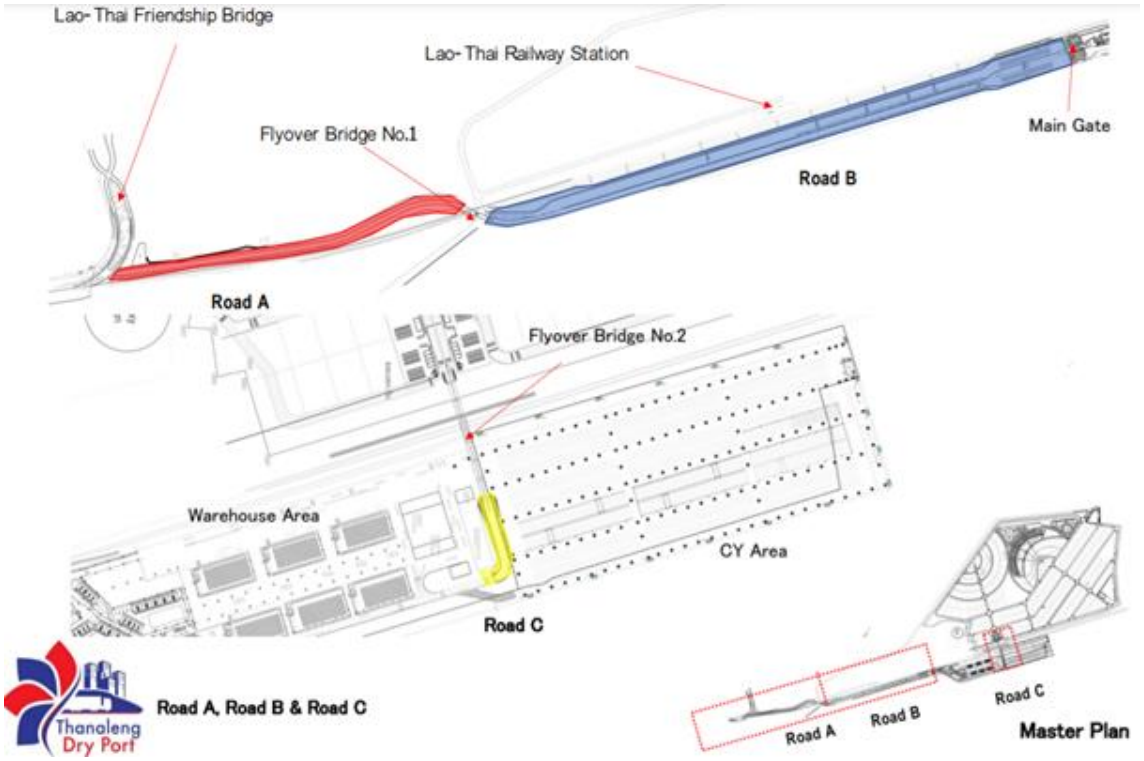
4.4 Permanent Supporting Infrastructure and Services

In the following sections are reported the main infrastructures and services supporting the operation of the Dry Port.

4.4.1 Connection Roads

To support the truck traffic to and from the Dry Port a new section of road (with a total length of approximately 1.2 km), also named Road A connects the existing road from the first Friendship Bridge with the access road (Road B) of the Dry Port. This road is a two lane road and is 8-9 m in width. It connects with the 80 m long flyover bridge before entry to the Dry Port (Figure 4.9).

In addition is also planned a new road section (Road C), within the Dry Port area, to connect the Warehouse area with the Flyover Bridge No. 2 linking the Dry Port with the planned Vientiane Logistic Park area.



Source: Dry Port Area. 2021. Provided by VLP

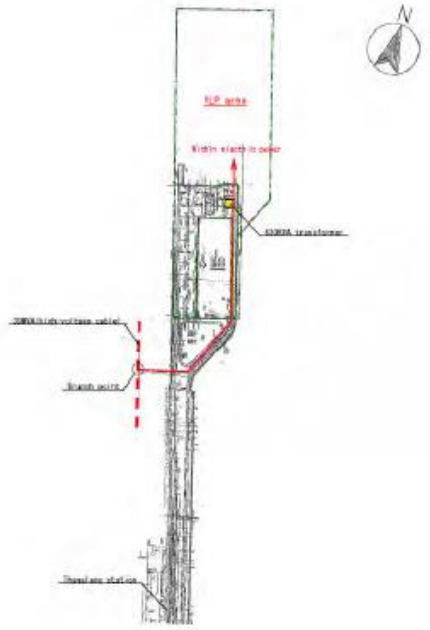
Figure 4.9: Connection Road (Road A) and Road C

4.4.2 Electricity

The power requirement for the Dry Port in the operational phase has been estimated between 4 MW (at the beginning of the operation) and 11 MW (in 2040, according to the planned growth of the activities) per annum.

This demand is to be met via a 1.6 km 22kV transmission line, already existing and built to support the pre-existing Container yard, that is routed between the Dry Port and the Dong Poxy Substation along a 10 m wide servitude.

The transmission line location is showed in Figure 4.10



Source: Japan International Cooperation, July 2015. Preparatory Survey on VLP in Lao PDR

Figure 4.10: Transmission line for the Dry Port

4.4.3 Water Supply

The water demand for the Dry Port in the operational phase of the Project is estimated to range between 10,000 m^3 per annum for the first 19-20 years of operation, and thereafter increase to 50,000 m^3 per annum. This estimate is based on water consumption of 100 litres per capita per day for the for the operational staff, and an allowance for miscellaneous water demand to cover hosing down of equipment, watering landscaped areas, etc.

It is intended that water needs for the Project will be met through the Nam Papa water supply system. The Project Area is supported by the Chinaimo Water Supply Facility, (with a daily capacity of 80,000 m^3), Thaduea 1 Water Supply Facility (with a daily capacity of 8,000 m^3) and Thaduea 2 Water Supply Factory (with a daily capacity of 20,000 m^3).

An existing water pipeline, with a diameter of 150 mm connects to the Chinaimo plant which will feed the facility. This pipeline has the ability to provide 800 m^3, which can easily meet the demand requirements. The main water pipeline supply will be connected with a water room (pumping station on site) for the distribution to the internal network. Nearby the pumping station is foreseen an underground water storage tank of 300 m^3 capacity, for raw water supply, to serve the project.

The layout of the main water supply and internal distribution network for the Dry Port is shown in Figure 4.11 and Figure 4.12.

There is currently no water treatment proposed on site and the water that is provided via the pipeline is non-potable. Drinking water for the Dry Port staff and guests will be provided by the local drinking water plant in bottled water and with drinking fountains.

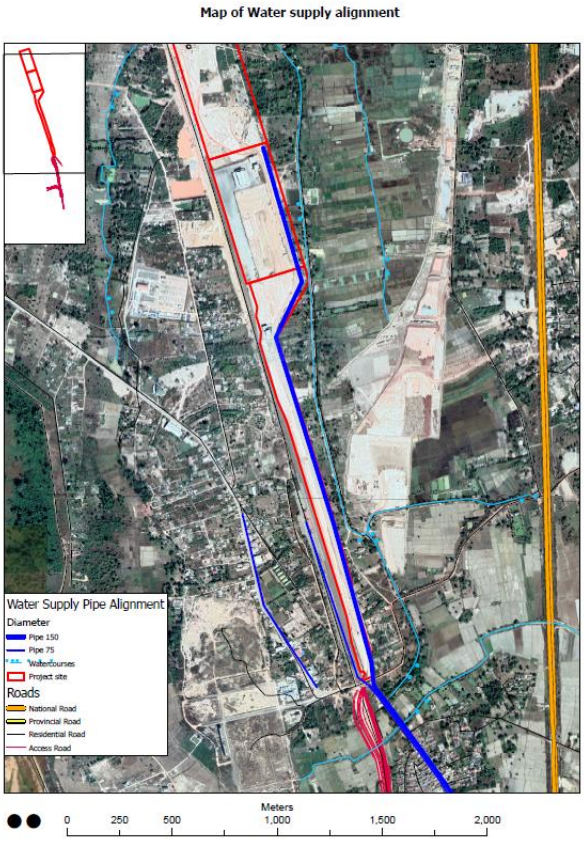


Figure 4.11: Water supply for the Dry Port

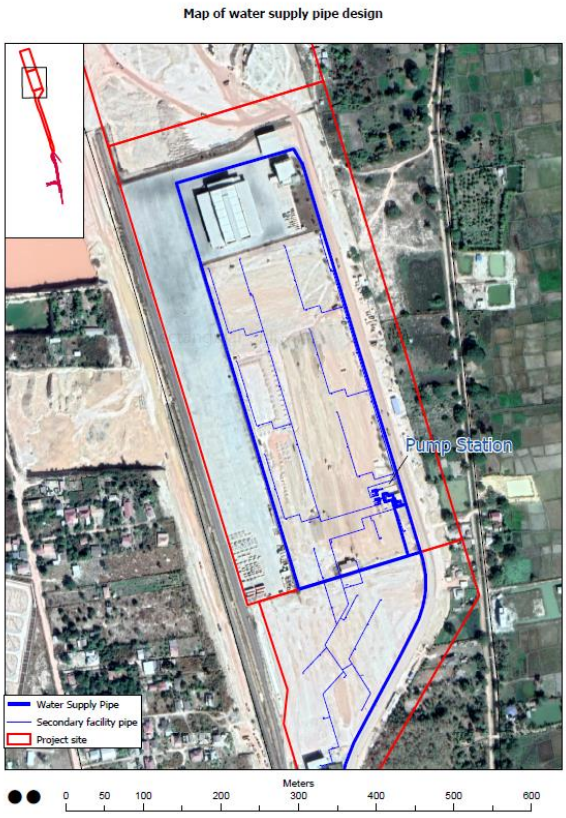


Figure 4.12: Internal Reticulation network

4.4.4 Wastewater Treatment and Discharge

During the operational phase of the Dry Port Project facilities will be provided with adequate septic tanks, located in proximity to all the relevant facilities.

- ✓ In the Bonded area (CFS), each one of the six warehouses has a dedicated septic tank (capacity 2 m^3 each);
- ✓ In the Internal Zone (Office Zone) the following facilities are provided with septic tank:
  - canteen with water treatment tank (capacity 20 m^3),
  - each of the two Motel building with a dedicated septic tank of (capacity 10 m^3 each),
  - public toilets with a septic tank (capacity 20 m^3),
  - each of the five Shop House with a dedicated septic tank (capacity 20 m^3 each),
  - each of the six Office Building with a dedicated septic tank (capacity 12 m^3 each).

All the septic tanks are connected with an underground reinforced concrete pipe network for the discharge of the treated water. The overflow from the septic tanks will be collected in the retention pond and tested prior to be discharged in the surface channel located on the western side of the Dry Port area.

The estimated quantity of wastewater produced during the operation phase of the Dry Port is 2,903,940 litres/year (2,032,758 litres/year of “grey water” and 871,182 litres/year of “black water” deriving from toilets).

The entire area of the Dry Port is also provided with a drainage network to collect the stormwater runoff. The collected water will be collected in the retention pond located in the Office Zone and then discharged in the surface water channel located at the West side of the Dry Port area.

The estimated quantity of collected water (stormwater runoff) is 1,392,300 litres/year.

The Retention Pond is located at the South of the Office Zone. The pond has a surface of 925 m^2 with a water depth of 3 m (3,500 m^3 capacity).

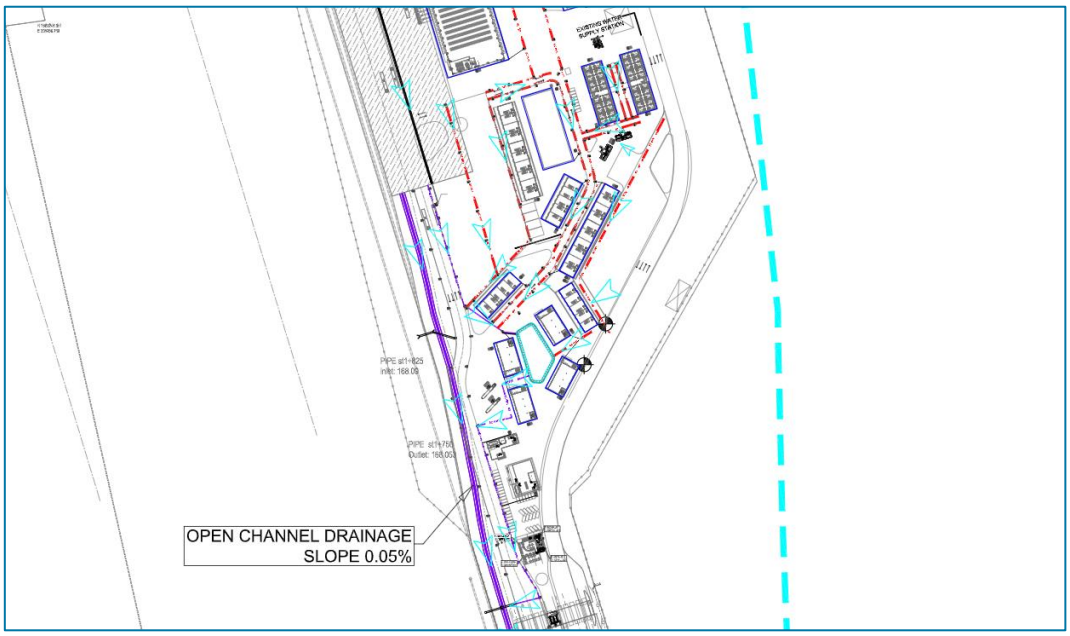
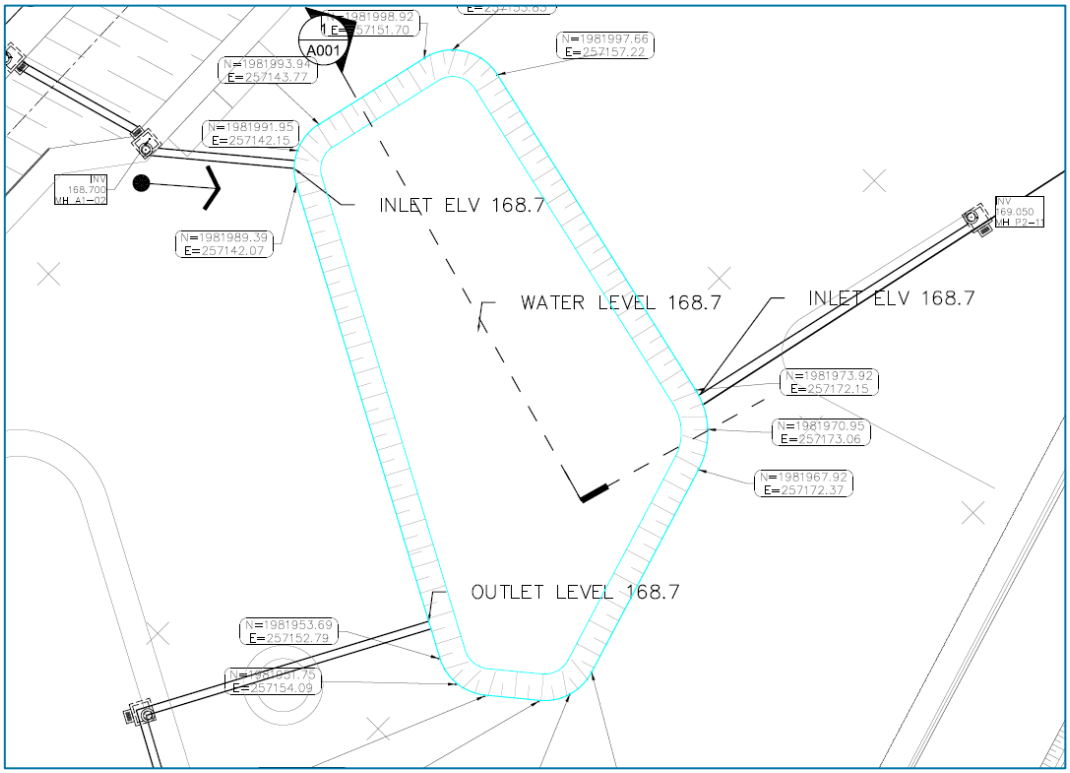
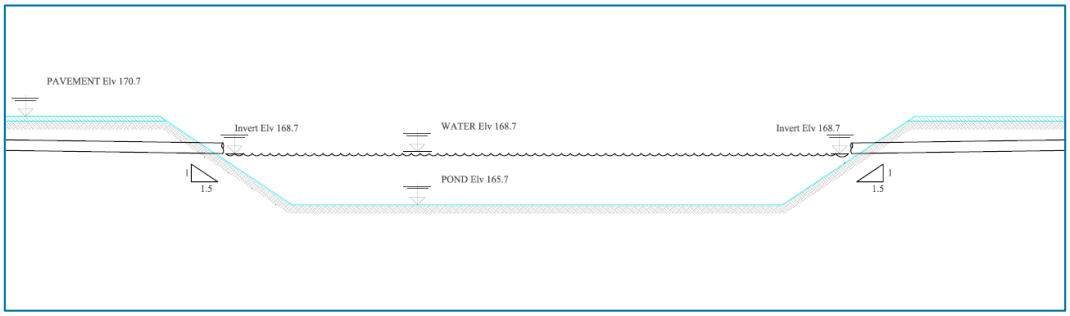


Figure 4.13: Drainage System (Office Zone)





Source: Dry Port Layout. 2020. Realised by PISECCON (Lao) sole co., ltd for VLP

Figure 4.14: Layout and Section of the Retention Pond

4.4.5 Waste

During the operational phase of the Project, the following is foreseen in terms of waste production:

- ✓ 150 kg per day from Warehouses, Container Yard and Offices;
- ✓ 15 kg per day of hazardous waste (such as exhausted oil, batteries, etc.).

All the solid wastes will be stored in a dedicated Waste Storage Facility located in the Office Zone. The Waste Storage Facility is 18 m x 8 m and divided in three sectors (non-biodegradable, biodegradable and recyclable wastes) and provided with concrete floor to avoid leaks. No specific or separate facilities are currently planned for the storage of hazardous wastes.

The waste collection and disposal will be managed by an appointed contractor. Given, that there are no licensed hazardous waste storage/treatment facilities in Laos, it is currently anticipated that the waste will be disposed of at the municipal landfill site. The landfill, managed by Vientiane Government, is located 25 km from the Project site in North-East direction. A dedicated section is allocated at the landfill facility for hazardous waste streams.

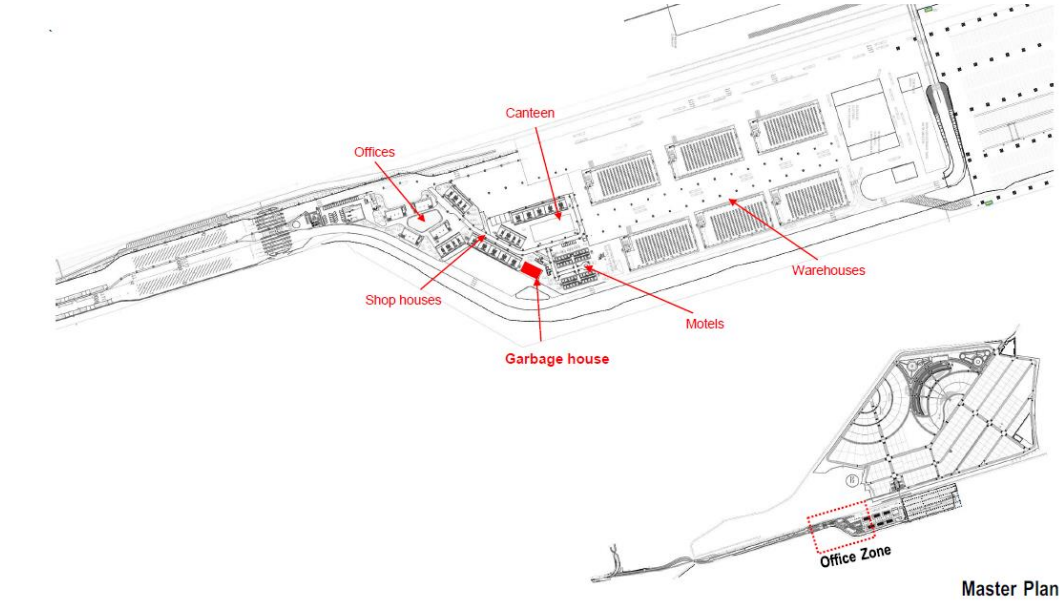


Figure 4.15: Location of the Waste Storage Facility

4.4.6 Accommodation on Site

During the Operation Phase of the Project the permanent personnel will be accommodated in two staff accommodation buildings for a total capacity of 125 – 164 staff. Each accommodation buildings (size 13.6 m x 50 m with 2 floors) will include 41 units on two levels per building with toilets.

The two accommodation buildings will be located inside the Thanaleng Dry Port area in the Office Building Zone.

Source: Pictures Provided by VLP.2021

Figure 4.16: Staff Accommodation

4.5 Temporary Infrastructure Provision

To carry out the construction phase several infrastructures and utilities were temporary required:

- ✓ Accommodation camps (described in the section below) which include septic tanks and waste areas specifically serving these areas;
- ✓ Batching plant;
- ✓ Drainage network;
- ✓ Workshop areas;
- ✓ Chemical storage;
- ✓ Access road.

Services and utilities were also needed during the construction:

- ✓ Electricity;
- ✓ Water;
- ✓ Drainage system;
- ✓ Waste management.

4.5.1 Accommodation Camps

During the Construction Phase workers were accommodated in different locations on the Project site, grouped per contractor group. It is envisaged that the Standard Technical Specifications of the Ministry of Public Works and Transport were complied with regard to the facilities provided.

In general, the worker accommodation standards include:

- ✓ Minimum space allocated per person: 2.5 m^2;
- ✓ Supply of safe water: 120 l/day;
- ✓ Adequate sewage and garbage disposal systems: garbage collection point and disposal by waste treatment company, adequate septic tanks provided for sewage system;

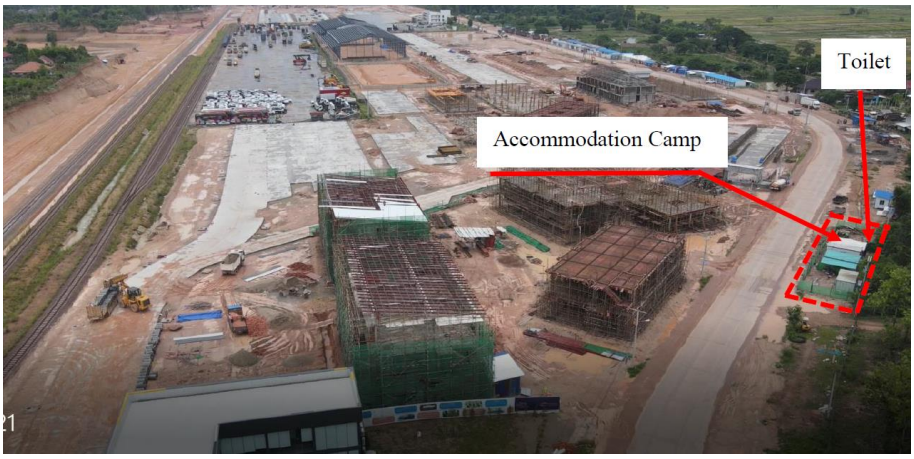
- ✓ Appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, and, in particular, insects: fans, quilt, fire extinguisher, sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting are provided to all workers;
- ✓ A minimum degree of privacy for workers: a minimum degree of privacy is ensured;
- ✓ Accommodation for men and women including migrant workers versus locals: men and women are separated.

In the following are presented the main characteristics and pictures of the accommodation facilities for each contractor involved in the construction phase.

CS Lighting Electronics Co., Ltd (planned for 12 workers)

- ✓ 3 accommodation facilities (Container size 4 m x 6 m);
- ✓ 1 Toilet booth;
- ✓ Area Size: 285 m^2;
- ✓ Location: at Thanaleng Dry Port - Office Buildings Zone.

Wastewater Management: CS Lighting's camp produce an average wastewater of 420 l/day with a peak of 800 l/day. The camp is provided with a septic tank of 2 m^3 volume.



Source: Pictures Provided by VLP.2021

POP Bridge-Road Construction Integrated Sole Co., Ltd (planned for 14 workers)

- ✓ 6 accommodation facilities (size 3 m x 3 m each);
- ✓ 2 Toilet booths;
- ✓ Area Size: 100 m^2;
- ✓ Location: at Thanaleng Dry Port - Warehouses Zone.

Wastewater Management: POP Bridge-Road Construction camp is provided with a septic tank.(no further information available)

Source: Pictures Provided by VLP.2021

Sinohydro Bureau 10 Co., Ltd (planned for 520 workers)

- ✓ 3 accommodation areas (each Standard Facility size 4 m x 6 m);
- ✓ 70 Toilets;
- ✓ Area Size: 10,000 m^2;
- ✓ Location: at Thanaleng Dry Port – Office Buildings Zone, Warehouses Zone and Container Yard Zone. Three camps have been provided for this contractor.

*Wastewater Management: Sino*hydro Bureau camps produce the following wastewater:

- ✓ Camp #1 produces an average wastewater of 3000 l/day with a peak of 6600 l/day;
- ✓ Camp #2 produces an average wastewater of 900 l/day with peak of 1800 l/day;
- ✓ Camp #3 (rental house) produces an average wastewater of 1020 l/day with a peak of 1500 l/day.

The camps are provided with the following septic tanks:

- ✓ Camp #1 No. 3 Septic Tanks: 6,5 x3x3 m (58,5 m^3), 5x3,5x3,8 m (66,5 m^3), 4,5x1,5x2 m (13,5 m^3);
- ✓ Camp #2 N0. 1 Septic Tank: 5x3,5x2,5 m (43,75 m^3);
- ✓ Camp #3 No. 1 Septic Tank: 4x2,5x2 m (20 m^3).

Source: Pictures Provided by VLP.2021

4.5.2 Other Temporary Infrastructure

In the following table is a description, based on the data made available, of the temporary infrastructure and utilities for the Construction Phase of the Dry Port.

Table 4.1: Temporary Infrastructure and Utilities for the Construction Phase

Infrastructure	Description	Photos/Visual material
Batching Plant	A batching plant for the cement production needed for the construction activities was locate in the north-western corner of the CY area. The wastewater from the mixing system was collected in a sedimentation tank and reused for dust suppression on the construction roads. The batching plant was removed at the end of the construction activities.	
Septic Tanks	Each workers camp was provided with septic tanks to collect and treat the wastewater as detailed in the paragraph above. The Septic tanks were periodically emptied by authorized company through septic pumper truck.	 
Construction Phase Waste Areas	The production of solid waste during the construction phase was estimated as follows: ✓ 1 ton per day of construction wastes; ✓ 90 kg per day general waste from the working camps; ✓ 150 kg of hazardous waste per day; ✓ max 200 liters of exhausted oil per month. Each working camp was provided with a designated storage area to collect the daily garbage. A designated construction waste storage area was located in the northern part of the CY zone. A designated hazardous waste storage area was also present. Waste collection and disposal was managed via an appointed waste contractor. The waste contractor, SKD, collects waste from four different	

Infrastructure	Description	Photos/Visual material
	locations weekly and transfers this to the disposal facility (landfill). The landfill, managed by Vientiane Government, is located 25 km from the Project site in a north-easterly direction. The landfill also collects hazardous waste in a dedicated section.	
Drainage Network	No information available at this stage regarding the drainage of the entire project site during the construction phase. For the working camp areas, the stormwater runoff was be collected in ditches and discharged in the surrounding environment.	
Workshop Area	No information available at this stage on the presence of workshop areas or facilities during the construction phase.	
Oil/Chemical Storage	During the construction hazardous waste was temporary stored in a dedicate closed storage area. Currently we have no specific information regarding the storage of chemicals on site	
Electricity Supply	During the construction phase of the Project use was of an existing 22 kV line currently serving the pre-existing container yard.	
Water Supply	Water for the Project construction was provided via the Nam Papa municipal water supply system and distributed on site trough a pressurization system. Drinking water for workers and staff was provided by the local drinking water plant in bottled water and with drinking fountains.	

Infrastructure	Description	Photos/Visual material
		

4.6 Employment (workforce)

4.6.1 Construction Phase

✓ The maximum number of workers involved in the construction phase of the Dry Port was 344 (a higher number of 482 was originally proposed, but reduced in reality as a result of COVID-19). Among the 344 workers 146 are expatriates and 198 are Laotian.

4.6.2 Operation Phase

During the Operation Phase of the Project the number of permanent personnel will be approximately 200 people.

4.7 Project Development Phases

The following timelines are proposed for this project:

✓ Pre-construction phase – which has entailed site preparation and levelling commenced in September 2020 and reached completion in December 2020;

✓ Construction phase of the Project commenced in January 2020 and is planned to be completed in March 2022. The main activities carried out at the Dry Port during construction phase can be summarized as follows:

- Land preparation work – this included earthworks, excavation, landfilling, land clearance and levelling,
- Installation of the workers accommodations and supporting services,
- Development of Road A and Road B,
- Provision of utilities – electricity, water and drainage,
- Construction of the Dry Port facilities - Customs Office, Work Shop, Special Purpose Company (SPC) Office, Canteen, Gates, Bulk Storage and Warehouse;

✓ Operational Phase of the Project: The Dry Port Operational phase is foreseen at least until 2050. The facility will then be decommissioned and appropriately rehabilitated.

4.8 Anticipated Traffic Volumes

4.8.1 Construction Phase

During the Construction Phase it was reported that an average of 15 trucks per day visited the Project site.

4.8.2 Operation Phase

During the Operation Phase of the Project it is expected that there will be an increase in cargo trucks on the roads to the Dry Port, specifically 450 year road, Thadeau Road, on the junction between Thadeau road at Dongphosy village and several other surrounding secondary roads.

The estimated monthly number of inbound trucks for the first five years of operation of the Dry Port , provided by VLP, is provided in Table 4.2.

Table 4.2: Monthly number of inbound trucks

Trucks Inbound Statistic									
	2 Wheels	4 Wheels	6 Wheels	8 Wheels	10 Wheels	12 Wheels	14 Wheels	Truck	Trailer
Average per month	0	92	138	0	111	8	1	518	1753
Total trucks inbound per month	2621								

Source: Table Provided by VLP.2021

4.9 Environmental, Health and Safety Measures

It is understood with regard to the aspects being considered for the S-ESIA that there will be some built-in mitigation provided that needs to be considered in the assessment of the Project. These controls have been identified in the existing ESMMP for the Project:

4.9.1 Air Quality

The following controls have been provided for:

- ✓ Dust suppression in areas of construction works 2 times/day (in the morning and evening) or more than twice if excessive dust is noted;
- ✓ Cover all materials that are transported via vehicles on to the site;
- ✓ No unloading of construction materials in high wind conditions;
- ✓ Wherever possible, the construction activities need to be placed away from sensitive receptors;
- ✓ No machinery should be turned on unless under operation;
- ✓ Maintain construction equipment on a regular basis;
- ✓ No burning of solid waste allowed;
- ✓ Speed limits on site to be restricted to 30 km/hour;
- ✓ Adherence to regulations and Law on Construction No.05/NA Dated 2009.

4.9.2 Waste-water

- ✓ Stormwater and waste-waters from the Project will be collected into a 3,500 m^3 retention pond;
- ✓ Maintenance of drainage systems;
- ✓ Drip trays for activities providing potential contamination;
- ✓ The Project will suspend any work related to soil excavation-dredges during rainy periods;
- ✓ Construction equipment or tools cleaning must be done within the specific area with low risk to contaminate soil or water sources;
- ✓ The Project Concrete Batching Plant and garage will be located far away from natural stream;
- ✓ Adequate, clean sanitary toilets for workers will be provided. Once construction completed all toilet and septic tanks will be dismantled.

4.9.3 Solid waste

- ✓ Waste from construction activities that can be reused will be separated and reused or sold to related sectors to reduce the amount of waste for disposal;
- ✓ Waste that cannot be reused will be stored properly and disposed of when there is proper volume;
- ✓ A sufficient number of bins for the workers' camps and for the separation of waste will be provided;
- ✓ There will be no burning of solid waste on site;

- ✓ An arrangement has been made with a licensed waste contractor and the Vientiane City Office for Management and Service for the disposal of waste.

4.9.4 Social

- ✓ Prepare and implementation the resettlement and compensation plan in accordance with Decree 84/GO;
- ✓ All agricultural activities will be compensated for at the rate and unit price agreed with the affected parties;
- ✓ VLP will communicate with the labour sector and construction contractor with regard to the issuing of the Project employee policy which gives first priority to the PAPs and secondly to people local to the Project area. These two groups are to make up fifty percent of the workforce;
- ✓ Site rules will be disclosed to workers accommodated on site;
- ✓ VLP will support local community projects including the provision of sport and educational equipment for public schools in 4 affected villages;
- ✓ A gender action plan will be employed for the Project that will ensure the participation of women in project development, ensure that at least 30% of the employment posts are filled by woman, provide adequate and separate infrastructure for the female workforce on site.

4.10 Project Alternatives

In order to ensure the environmental and social sustainability of the Project, the present S-ESIA includes an analysis of the potential Project alternatives. The following sections provide an overview of the various alternatives considered during the ESIA, including:

- ✓ Location alternatives for the Project; and
- ✓ No-project alternative.

Given that construction has already been completed, the no-project and location alternatives cannot be realised. This also applies to all other potential alternatives with the exception of those influencing the operating regime. These are however, described below for sake of completeness.

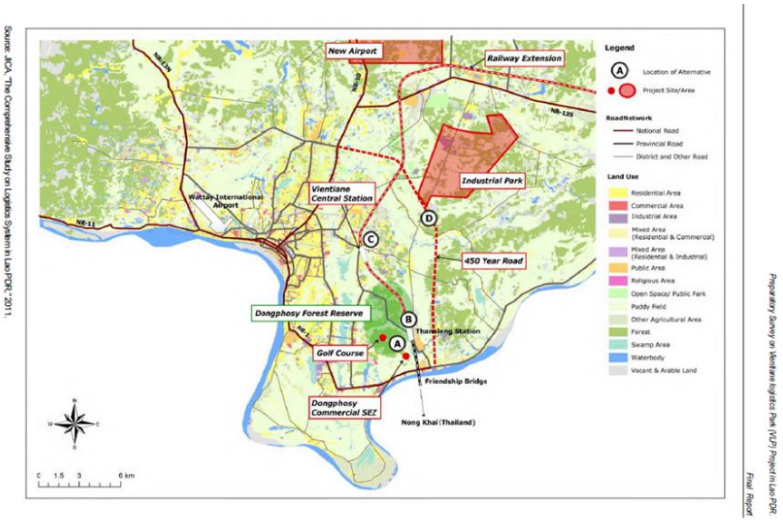
4.10.1 Location Alternatives

There are several factors that have influenced the selection of the current site for the Dry Port including:

- ✓ Land availability in terms of ownership;
- ✓ Proximity to transportation networks that would facilitate imports and exports;
- ✓ Proximity and easy access to new proposed developments that would facilitate its successful recognition as an International Dry Port;
- ✓ The results of the ESIA baseline studies indicated that there were few significant environmental constraints to the proposed development.

During earlier site selection processes, the following alternatives were identified for the Vientiane Logistics Park (VLP) and the Dry Port.

- ✓ Alternative A: South West side of the Thanaleng Station;
- ✓ Alternative B: Around the Thanaleng Station;
- ✓ Alternative C: Vientiane Station (currently Planned);
- ✓ Alternative D: inside the planned Industrial Park.



Source: Japan International Cooperation, July 2015. Preparatory Survey on VLP in Lao PDR

Figure 4.17: Alternative sites for the development of the VLP

Alternative B was selected for the the Dry Port and proposed VLP for the following reasons:

as it was more advantageous in terms of accessibility, flexibility for future expansion, and project cost. Principally, this site is advantageous because it befits from the presence on site of the existing container yard (CY) completed in 2015 (see Figure 4.17).

- ✓ Accessibility;
- ✓ Flexibility for further expansion;
- ✓ Lower development cost;
- ✓ Takes advantage of the existing container yard;
- ✓ Geotechnical and hydrological suitability.

4.10.2 No-project Alternative or Do Nothing

In 2018 Lao PDR ranks 82 over 160 countries in the Logistics Performance Index of World Bank and the average of Logistics Performance Index was 2.70 resulting in Laos being one of the lowest ranked in the ASEAN region. This contrasts with the continuing national economic growth. The import and export of goods depends on the Dry Port transport which currently covers more than 80% of all transport.

The 'no-project" alternative means that the Project will not be developed and thus that Government do not commence the Dry Port Construction (no project case) for serving the international freight particularly in Vientiane Capital. Laos will lose the opportunity in commerce and the national revenue collection due to a lack of a standardized control system for the import-export of goods and be unable to manage the revenue collection. The transport of goods will be transported directly to the other countries due to the lack of cargo transhipment area.

5 PROJECT AREA OF INFLUENCE

The IFC Performance Standard 1 requires that the Project area of influence is defined in terms of:

- ✓ Area directly affected by the Project and a component of the Project;
- ✓ Impacts from unplanned but predictable developments caused by the Project that may occur later or at a different location;
- ✓ Indirect impacts on biodiversity or ecosystem services upon which affected communities livelihoods are dependent.

In terms of the direct area of influence for the Project (as represented in Figure 5.1:), this will include the following:

5.1 Direct Footprint Area

- ✓ Area for the Dry Port development (55 ha);
- ✓ Area proposed for the improvement of the existing road to provide access for the Project;
- ✓ 22 kV powerline servitude.

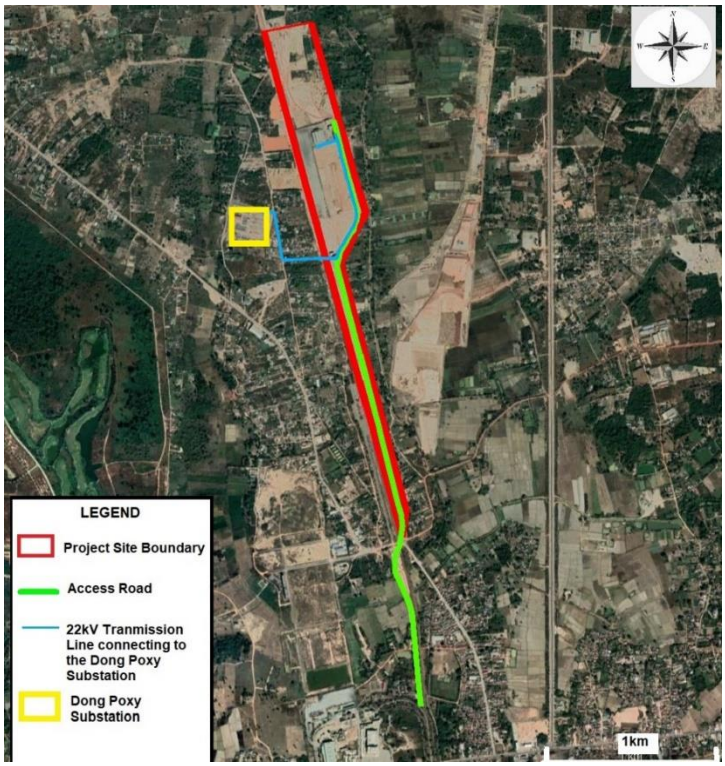


Figure 5.1: Direct Project Footprint Area

5.2 Indirect Area of Influence

This is dependent on the impacts that will be transferred beyond the Project footprint boundary and will be governed by the presence of sensitive receptors (environmental, social, infrastructural, and economic) that will be subject to these impacts. In the case of the Dry Port development this will include:

- ✓ Human receptors - communities including Dongphosy, Dongphonhae and Thanaleng villages in Hadxayfong district, and Nakhuaytai village in Saysetha district, the boundaries of which are situated 0.3km, 0.8km, 1.2km and 1.7km from the Dry Port site's boundaries, respectively. Impacts experienced may be a result of physical and economic displacement, community health and safety risks including noise and air pollution, impacts on labor rights and local recruitment;

- ✓ Ecological receptors – biodiversity features that may be affected by the proposed Project include Mekong Channel near Pakchom (2.95km south-west of the Dry Port), Mekong River (1.54 km south of the dry-port) and the forested area in the upper north of the concession area;
- ✓ Airshed impacted on by project emissions from the Project;
- ✓ Roads and infrastructure in close proximity to the Project. Currently this is anticipated to include:
  - Road infrastructure to be utilized for transportation of goods to and from the Dry Port. A separate traffic impact assessment is being undertaken to identify and assess this impact and will be included in an Addendum to this S-ESIA,
  - Vientiane City Office for Management and Services (VCOMS) landfill facility which is currently proposed for waste disposal purposes,
  - Water sources – currently it is proposed that water is sourced directly from Chinaimo water supply plant. The availability of this resource needs to be confirmed.

In addition it is intended that a Logistics Park, Laos China Railway connection and the Vietnam-Laos railway project will be developed to support and supplement the Dry Port. This development as well as the cumulative impacts associated with both facilities is the subject of two further studies not addressed by the S-ESIA.

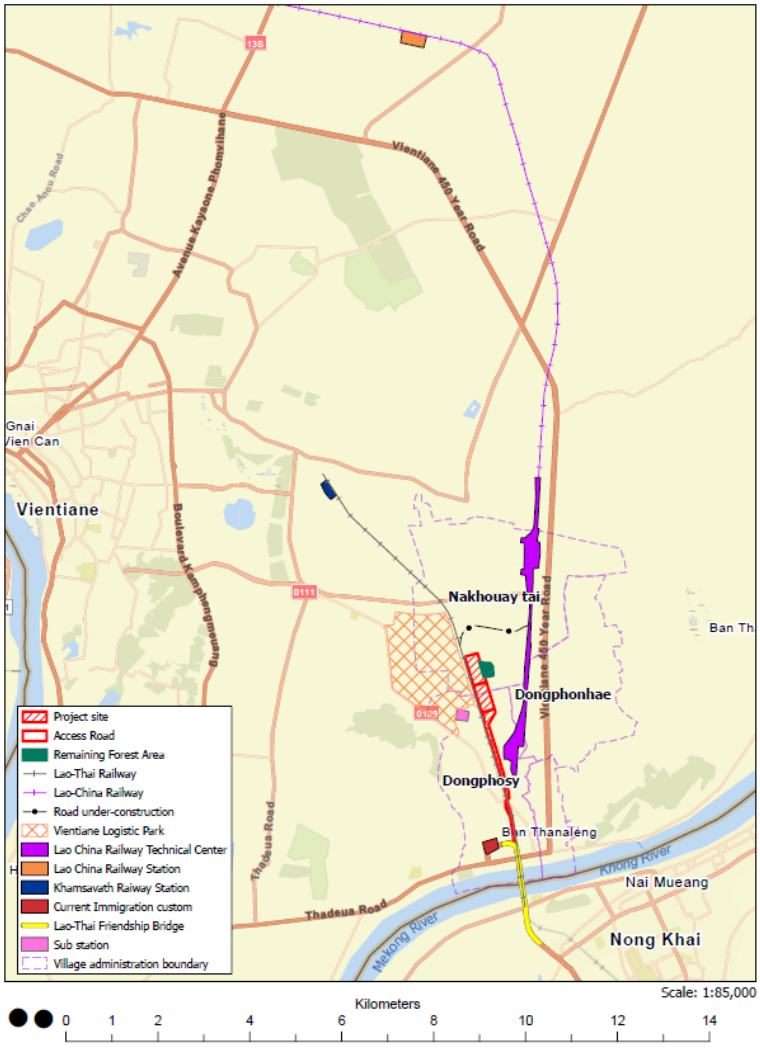


Figure 5.2: Project Area of Influence (direct and indirect project impacts represented)

5.3 Impacts from Unplanned but Predictable Developments

In addition, the following developments may result from this project, but to date have not been identified as fall beyond the current scope of the S-ESIA. These may require further assessment when more definitive information about these becomes available:

- ✓ With the exception of quarries on the Dry Port Site, additional quarries and other providers of building materials utilised for the construction of the Project were not identified or detailed in the terms of reference for these studies and information has not been gathered to identify and assess these facilities as part of the S-ESIA;
- ✓ Facilities for equipment manufacturing for all aspects of the Project;
- ✓ Movement of displaced people from the Project site to alternative residential areas and the impact that this would have on the host communities – this has not been defined given the limited baseline data available.

5.4 Indirect Impacts

The Project may potentially result in impacts downstream from the Project area of influence (eventually the Mekong River which is located 1.54 km away) if appropriate wastewater management does not take place on site. Releases from the retention pond are proposed to the canal that runs in a southerly direction from the site and during the construction phase stormwater runoff ran directly into this canal. Given that no information is currently available with regard to anticipated volumes as well as existing flow in the canals it is not possible to determine if contaminated runoff would reach to Mekong River. Should this take place, however, depending on volumes and the degree of dilution, this could impact both human and biological receptors downstream. Given that the current built-in design is such so as to avoid such impacts, this will be the result of unplanned events and cannot currently be defined. The S-ESIA has also not assessed downstream impacts and/or water use.

5.5 Scope of the Impact Assessment

Given that there are limited aspects that have informed the assessment presented in the S-ESIA and unplanned development and indirect impacts have not been identified or defined, the scope of the assessment has been based on the direct and indirect area of influence detailed above.

6 E&S BASELINE

This section of the report provides additional information regarding the baseline gaps that were identified in the baseline described in the Environmental and Social Impact Assessment (ESIA) prepared for the Dry Port by the Lao Consulting Group Limited (LCG) and Innogreen Engineering Company in 2020. For an understanding of all baseline conditions it needs to be read in conjunction with that report.

6.1 Land use, Land rights and Servitudes

6.1.1 Land Rights

The following land ownership applies for the properties directly affected by the Dry Port Development:

- ✓ Dry Port Area – Government Reserve under the administration of the Nakoui Tai village of Xaysetha District and Dongphosi village of Hadxaifong district. A concession has been granted for the development of the Dry Port;
- ✓ Access road - Government Reserve area under the administration of Dongphosi village of Hadxaifong district, located to the south of the Project area.

6.1.2 Servitudes in the Project area

There is a 150 kV powerline to the South of the Project Site in the area of the access road that requires realignment as a result of the bridge construction. A conditional approval has been granted by EDL subject to the provision of a geotechnical report which has been provided.

6.1.3 Historical Land Use and Surrounding Land Uses

The site is located approximately 10 km from the capital of Vientiane, Laos.

In 1999, the Dongphosy protected area, in which the 55ha Project area is situated, was allocated for the development of the Thai Lao Railway project. Following completion of the railway line, local community members commenced with encroachment into this area and the area was primarily used for farming activities including pig-rearing, grazing land for other livestock, fishponds, and gardens with various trees and crops including rice, banana trees, and bamboo trees, with some residential houses also located in the area.

In 2013, the land was allocated for the Container Yard (CY) project under the Railway Department of Ministry of Public Works and Transport and in 2020, the concession was transferred to the Dry Port Project.

Prior to construction activities on site, the land used for the access road included a mix of agricultural paddy fields and residential dwellings, used by 14 households.

Land uses that surround the site are:

- ✓ Dongphosy, Dongphonhae and Thanaleng villages – these are characterized by residential and agricultural activities – fields, gardens and livestock roaming;
- ✓ Mekong River forming the boundary between Laos and Thailand approximately 1,5 km south of the site;
- ✓ Transportation routes in the area – Laos-Thailand Railway, Friendship Bridge between Thailand and Laos, national 450 road, Thadeau road route;
- ✓ Remaining forested area to the north of the site;
- ✓ Sites proposed for new projects of a commercial/transportation nature. This includes the Laos China Railway, Vietnam Railway and Logistics Park.

6.2 Biodiversity

The results of the desk study indicated that there are few sites to the north and one site to the south of the Dry Port where natural forest habitat still persists, however these areas are enclosed by agricultural lands and areas of the built environment. These small pockets of forest are under enormous pressure as a result of clearance, collection of wood and Non-forest timber products (NTFPs) and are likely to be heavily degraded.

Much of the low-lying land around the Project area is dominated by rice paddies, while gardens, tree planting and housing occupies the remaining land. Large rice paddy fields are found mainly on the eastern side of the Dry Port, while residential areas largely are found on the southwestern side.

There are no permanent streams in the vicinity of the Dry Port and most streams occur in the area during the rainy season only.

6.2.1 Presence and Status of Natural Habitat (ibat review)

The IUCN Red List Categories and Criteria classify species at high risk of global extinction. It divides species into nine categories: Not Evaluated, Data Deficient (DD), Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CR), Extinct in the Wild (EW) and Extinct (EX).

6.2.1.1 Results of the desktop review

There are four protected areas within 50 km of the Project site. These are:

- ✓ Houei Nhang Conservation Area;
- ✓ Nam Yung Nam Som National Park;
- ✓ Phou Khao Khuay National Protected Area; and
- ✓ Phou Pha Nang National Protected Area.

The above sites are between 10 and 50 km from the Dry Port site and are therefore outside of the likely zone of influence of the Project.

There are three Key Biodiversity Areas within 50 km of the Project site. These are:

- ✓ Mekong Channel near Pakchom;
- ✓ Mekong River from Luang Prabang to Vientiane; and
- ✓ Phou Khaokhoay.

All three sites are Important Bird Areas (IBAs), two of which; Mekong Channel near Pakchom and Mekong River are within 10 km of the Project site.

The Mekong Channel near Pakchom IBA[5] comprises an approximate 160 km stretch of the Mekong River and is at its closest point approximately 2.9 km south-west of the Dry Port. The site supports a range of riverine habitats, including the Mekong main and braided river channels, sand and shingle bars, exposed bedrock and vegetated islands. The larger sandbanks are covered in *Homonoia riparia* scrub. On the Thai side of the international border, the river channel is public land but the riverbank is mostly privately owned.

The IBA is of high importance for the conservation of a suite of riverine species that are nationally threatened in Thailand and are dependent on the mosaic of habitats represented along this stretch of the Mekong River. These species include Great Thick-knee (*Esacus recurvirostris*), River Lapwing (*Vanellus duvaucelli*), Wire-tailed Swallow (*Hirundo smithii*) and Jerdon's Bushchat (*Saxicola jerdoni*). The open sandy islands are an important breeding habitat for Small Pratincole (*Glareola lactea*); of which the site is thought to support greater than 1% of the Asian biogeographic population. The site qualifies under IBA qualification Criterion A3 because it supports one species; Jerdon's Bushchat which is restricted to the Indo-Gangetic Plains (Biome 12) as well as under Criterion A4i for Small Pratincole.

The site is also important for non-bird biodiversity including: Mekong Freshwater Stingray (*Dasyatis laosensis*) (IUCN EN) ,Giant Freshwater Stingray (*Himantura chaophraya*) (IUCN EN), Giant Catfish (*Pangasianodon gigas*) (IUCN EN), Jullien's Golden Carp (*Probarbus jullieni*) (IUCN EN) and Laotian Shad (*Tenualosa thibaudeaui*) (IUCN EN).

The Mekong River from Luang to Vientiane IBA6 comprises an approximate 300 km section of the Mekong Channel upstream of Vientiane and is at its closest 1.5 km south of the Dry Port. The upper section (c.150 km), upstream of Ban Vang, is situated entirely within Lao P.D.R., while the lower section (c.160 km), between Ban Vang and Ban

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[5] BirdLife International (2021) Important Bird Areas factsheet: Mekong Channel near Pakchom. Downloaded from http://www.birdlife.org on 15/12/2021.

[6] BirdLife International (2021) Important Bird Areas factsheet: Mekong River from Luang Prabang to Vientiane. Downloaded from http://www.birdlife.org on 15/12/2021.

Thadua, forms the international border with Thailand; although parts of the Mekong Channel within Thailand are not included within the IBA. The IBA contains a high proportion of mosaic stretches, where the Mekong Channel, during the low-flow season, supports a variety of habitat types, including sand and gravel bars and islands, rock outcrops, bushland and braided streams. The IBA also contains significant stretches with open sandy islands. The bird communities of mosaic stretches are considered to be of the highest conservation value of all those along the upper Lao Mekong channel, and include species such as River Lapwing (*Vanellus duvaucelii*), Wire-tailed Swallow (*Hirundo smithii*) and Jerdon's Bushchat. In addition, small numbers of Great Thick-knees persist in these stretches, although the remaining populations may not be viable in the long-term. The open sandy islands are important for Small Pratincole and the IBA is thought to support greater than 1% of the Asian biogeographic population of this species.

Whilst the site does not quite meet the 1% threshold for River Lapwing, the species is still listed on the basis that the site is arguably of international importance for the conservation of this species. The site qualifies under Criterion A3 and A4ai.

The Dry Port Project site is not functionally linked (e.g. by direct waterways or other linkage habitats) to the Mekong River. The Project Site has neither historically or currently supported habitats which are important within the IBA and as such it is certain that the Dry Port Project will not result in direct or indirect impacts on the IBAs or it's qualifying features.

A species list was generated during the search of the IBAT database for species of conservation importance potentially present within a search area of 50 km of the Project site. These species are shown in the table below.

Common Name	Scientific Name	IUCN Category
Mekong Giant Salmon Carp	*Aaptosyax grypus*	CR
Siamese Crocodile	*Crocodylus siamensis*	CR
Elongated Tortoise	*Indotestudo elongata*	CR
Sunda Pangolin	*Manis javanica*	CR
Chinese Pangolin	*Manis pentadactyla*	CR
Mekong Giant Catfish	*Pangasianodon gigas*	CR
Giant Pangasius	*Pangasius sanitwongsei*	CR
Jullien's Golden Carp	*Probarbus jullieni*	CR
Northern White-cheeked Gibbon	*Nomascus leucogenys*	CR
Giant Carp	*Catlocarpio siamensis*	CR
N/A	*Schistura leukensis*	CR
N/A	*Schistura tenura*	CR
N/A	*Terniopsis ubonensis*	CR
Baer's Pochard	*Aythya baeri*	CR
White-rumped Vulture	*Gyps bengalensis*	CR
Red-headed Vulture	*Sarcogyps calvus*	CR
White-eyed River Martin	*Eurochelidon sirintarae*	CR
Yellow-breasted Bunting	*Emberiza aureola*	CR
Slender-billed Vulture	*Gyps tenuirostris*	CR
Indochinese Leopard	*Panthera pardus ssp. delacouri*	CR
Flying Minnow	*Laubuka caeruleostigmata*	EN
Asian Elephant	*Elephas maximus*	EN
Lar Gibbon	*Hylobates lar*	EN

Common Name	Scientific Name	IUCN Category
Pygmy Slow Loris	*Nycticebus pygmaeus*	EN
Tiger	*Panthera tigris*	EN
Phayre's Leaf- monkey	*Trachypithecus phayrei*	EN
N/A	*Dipterocarpus retusus*	EN
N/A	*Hopea ferrea*	EN
N/A	*Anisoptera costata*	EN
N/A	*Dipterocarpus intricatus*	EN
Mekong Freshwater Stingray	*Hemitrygon laosensis*	EN
Bengal Slow Loris	*Nycticebus bengalensis*	EN
Carpenter's Lar	*Hylobates lar ssp. carpenteri*	EN
La Touche's Free-tailed Bat	*Tadarida latouchei*	EN
Large-spotted Civet	*Viverra megaspila*	EN
Indochinese Gray Langur	*Trachypithecus phayrei ssp. crepuscula*	EN
Keeled Box Turtle	*Cuora mouhotii*	EN
Striped Catfish	*Pangasianodon hypophthalmus*	EN
N/A	*Stenothyra huaimoi*	EN
N/A	*Terniopsis chanthaburiensis*	EN
N/A	*Urogymnus polylepis*	EN
Green Peafowl	*Pavo muticus*	EN
Black-bellied Tern	*Sterna acuticauda*	EN

6.2.1.2 Mapping of Natural and Modified Habitats

A data search exercise including sourcing of remote mapping and aerial photography was undertaken in order to ascertain the extent of habitat within the Dry Port Project Area.

Records of GIS land use maps from 2006 to 2021 of the Dry Port Project Area show that prior to the construction of Dongphosy Railway Station in late 2006, large parts of the land around the Project site, including the site itself still supported forested areas, in particular on the western side of the Dry Port area. In addition to forest habitats, the area also supported areas of rice fields and subsistence farming. Residential areas were mainly found on the northern side (Nakhouay Tai) and stretching down to the south along an access road connecting to Thadeua Road which lies to the south of the Dry Port.

The areas of forest were included in the Dongphosy Forest Reserve however little information exists regarding the status of this reserve, what species it previously supported or why it was designated as a Forest Reserve. It is understood that the clearance of the forested areas was sanctioned by the Laos Government.

The land use in the area changed dramatically between 2011-2016 because of urban development. Most of the forest in Xiengda was converted to a golf course (Long Thang) while forest cover in Dongphosy was significantly reduced when compared to 2006. Agricultural land and forest were affected by construction of the 450-year and Xiengda-Dongphosy road (four lane highway) which runs from the junction of Dong Dok on 13S road to Thadeau road and from Ban Xiengda to Ban Dongphosy respectively. The construction of the road increased access to these areas and the increased demand for housing and commercial agricultural areas added further pressure to remaining areas of habitat.

In addition, the ongoing construction of Laos-China railway project that connects the railway to Dongphosy Station also caused a modification of natural habitat in the area on the eastern side of the Dry Port. Habitat and land use maps from 2006 to 2021 are shown on the figures below (Figure 6.1 - Figure 6.4).

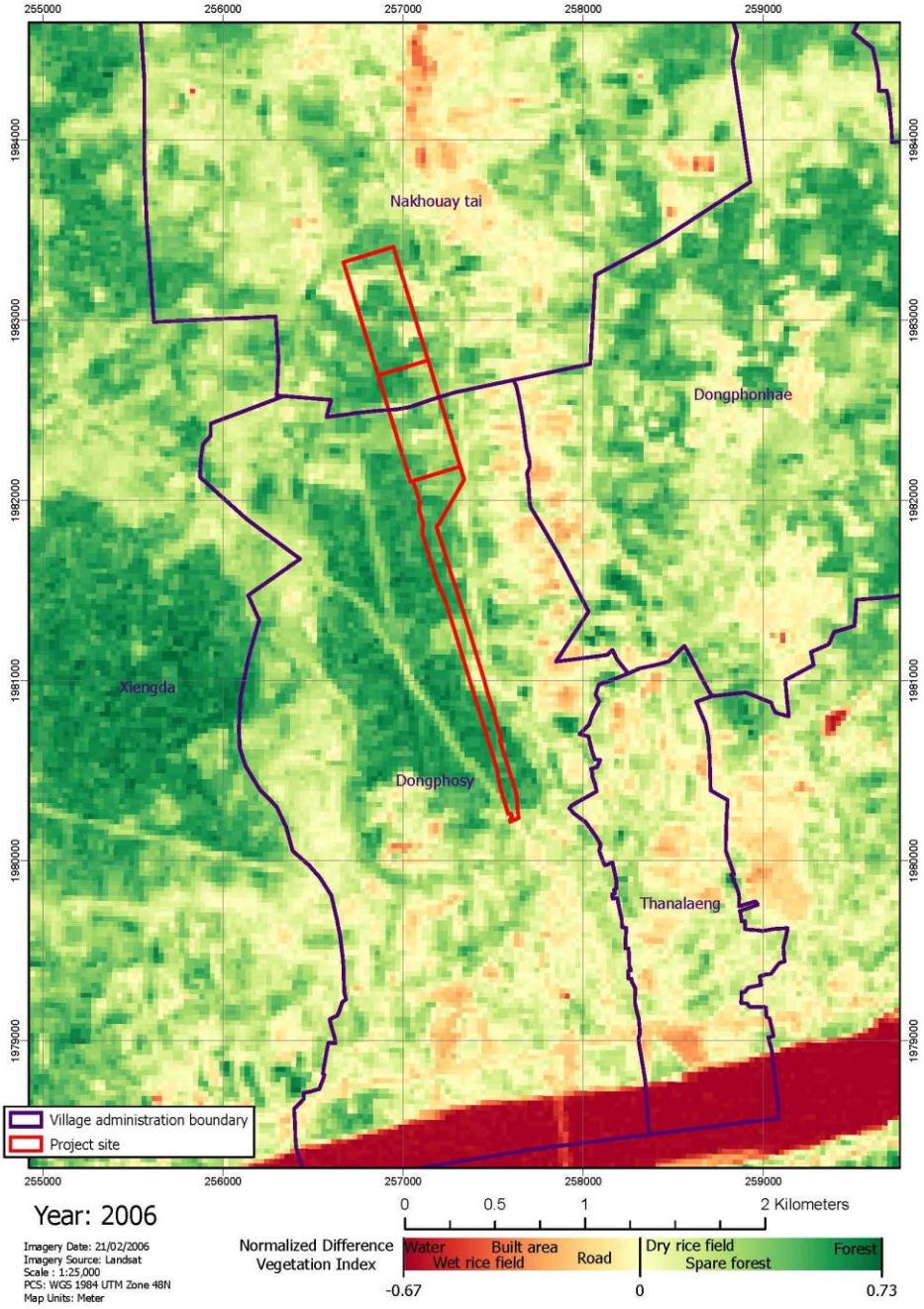

Figure 6.1: Land use in the Dry Port area (2006)

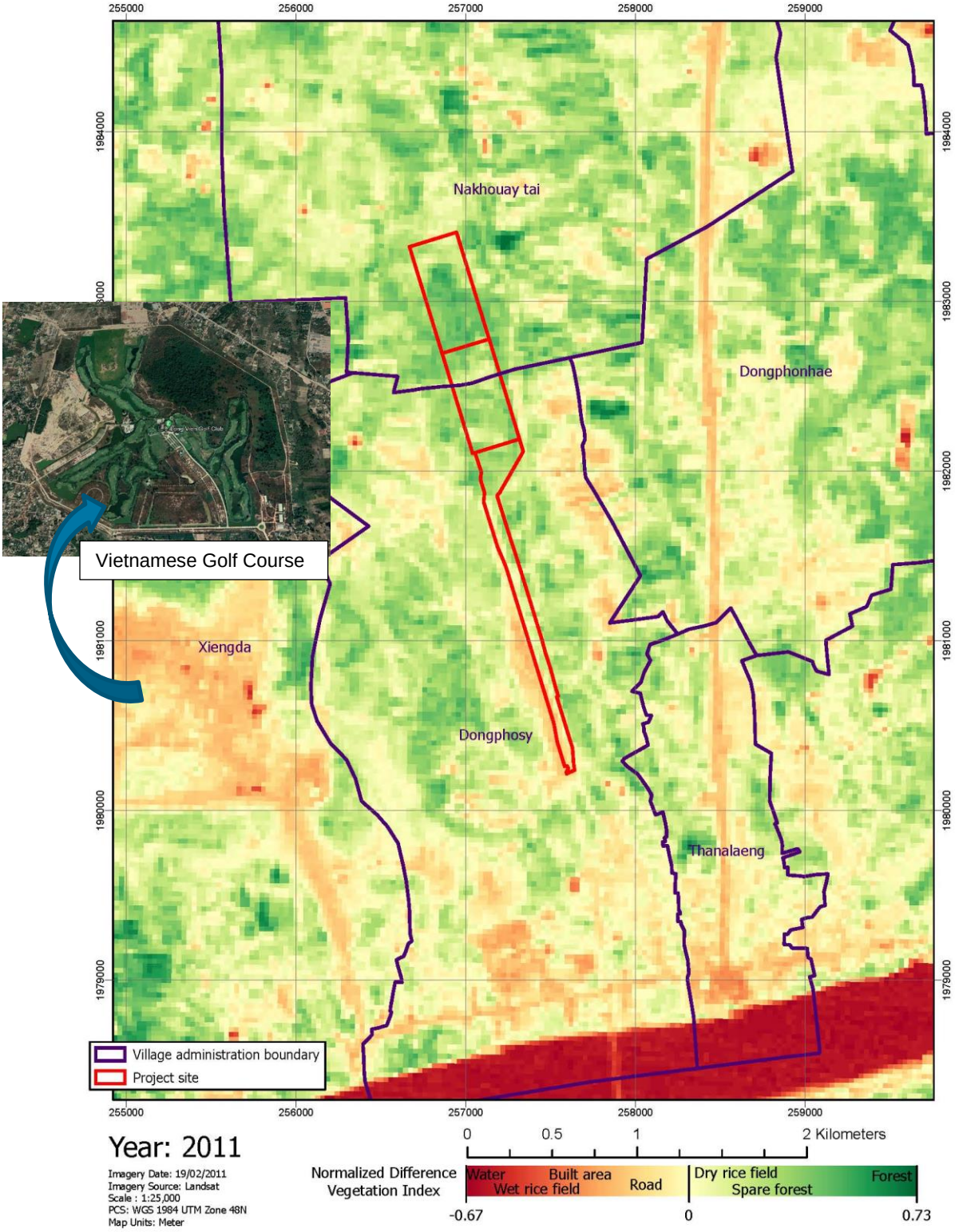

Figure 6.2: Land use in the Dry Port area (2011)

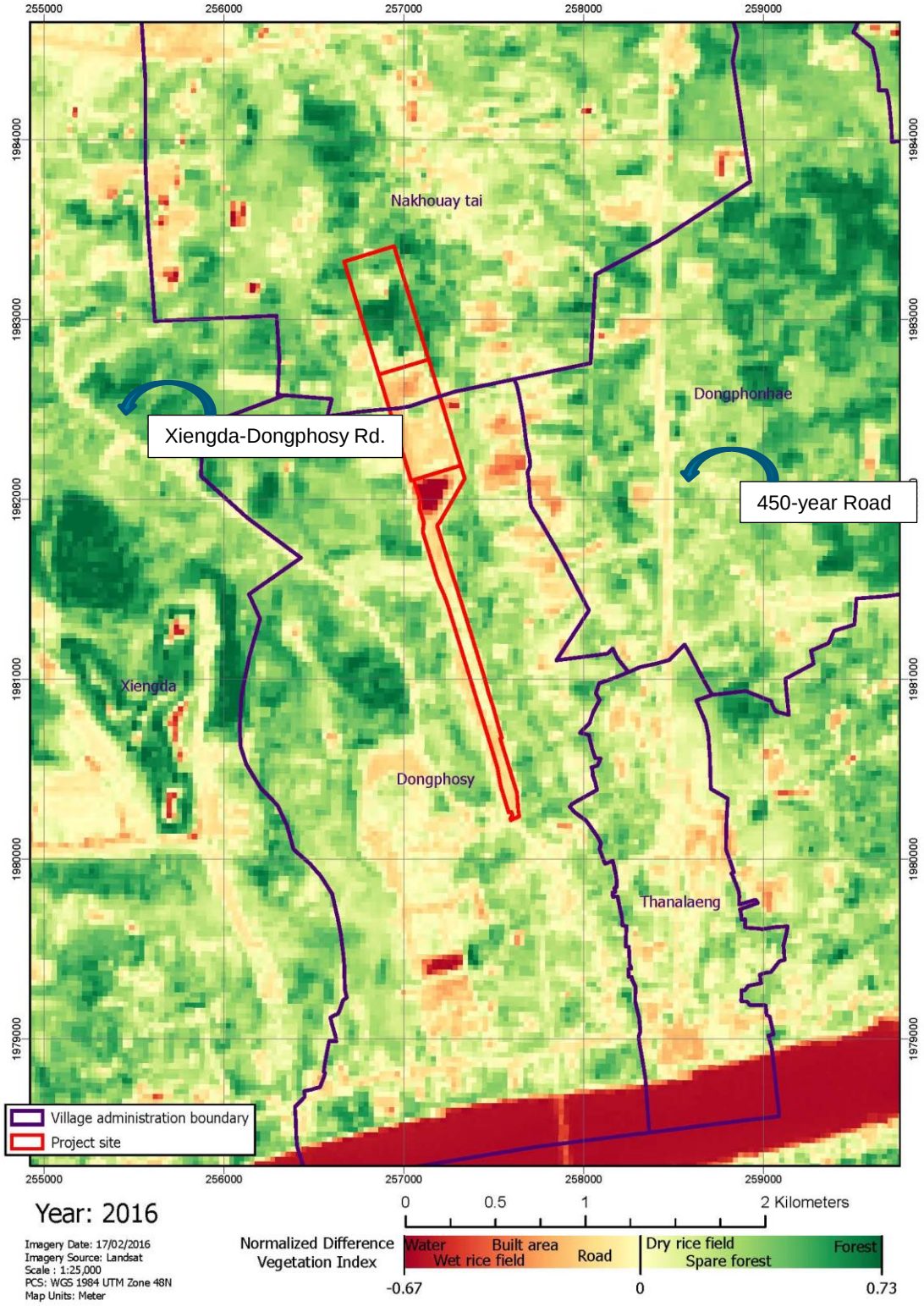

Figure 6.3: Land use in the Dry Port area (2016)

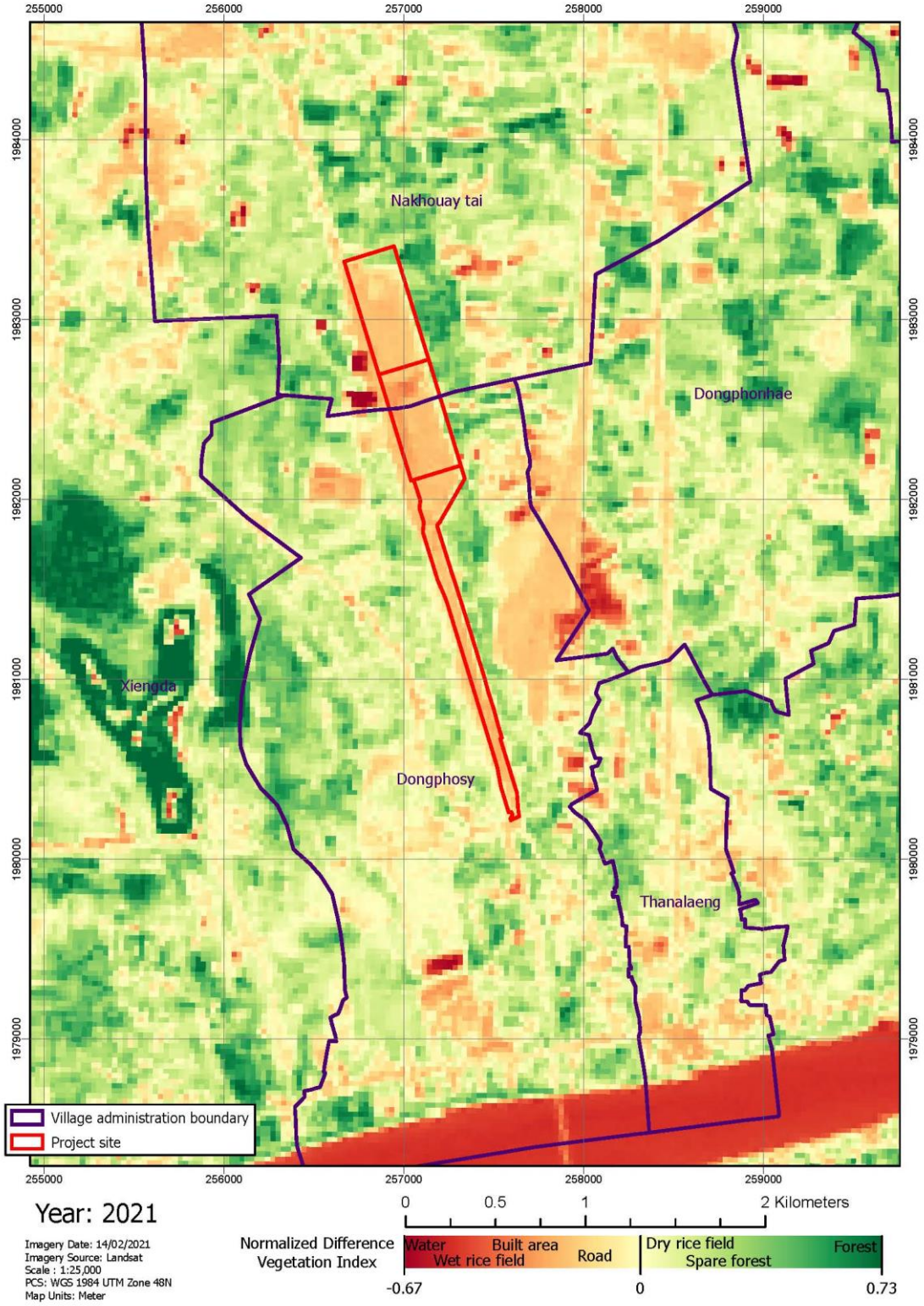

Figure 6.4: Land use in the Dry Port area (2021)

Site surveys were completed in 2014 to inform a 2015 report prepared for the Vientiane Logistics Park (VLP) Project and the habitats within the Dry Port Area were considered to support secondary forest[7], although no lists of plant / tree species present were provided within the report. Most of this habitat had been cleared from the Dry Port site between 2014 and 2021 (Figure 2.4), with approximately 0.9 ha remaining in early 2021 (February).

6.2.1.3 Results of the site visit

At the time of the survey in October 2021 there were no areas of habitat on the Dry Port site with any remaining areas of habitat present in early 2021 having already been cleared. In order to ascertain the status of remaining habitat (e.g. pre-2020) within the Project site a study site, adjacent to the Dry Port, was selected. The study site would have previously been contiguous to the Dry Port site and so it has been assumed that it is likely to be representative of the habitats previously present on the Dry Port site. The study site is in a community forest and is immediately north-east of the Dry Port site as shown in the figure below.

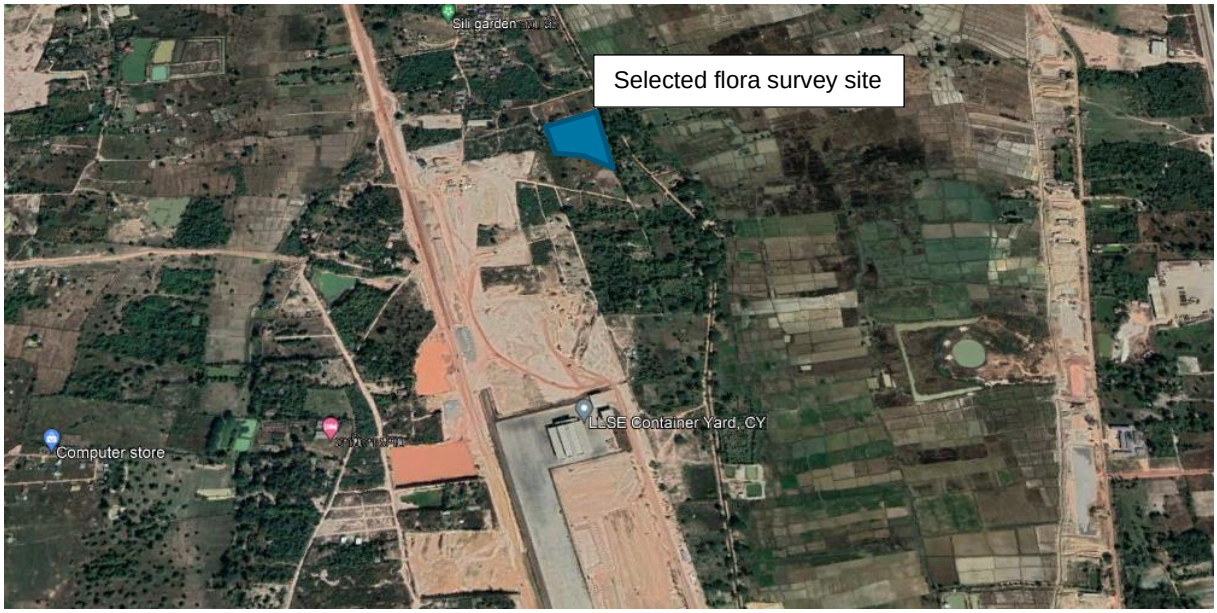

Figure 6.5: Flora survey site

Sampling on site recorded 40 plant species including 18 species of tree, 14 clinging / climbing plants, 6 species of grass and 2 bamboo species. None of the species recorded are listed by the IUCN as being Endangered or Vulnerable and all species recorded within the study site are classed as Least Concern and no national Red Data Book or legally protected species were recorded.

All of the trees within the study area were classed as small to medium trees. Any larger trees with economical value have previously been cleared from the study area and this is also reflected in all remaining forest habitat outside of the Dry Port. A list of plant species recorded within the study plot is given in the table below.

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[7] Preparatory Survey on Vientiane Logistics Park (VLP) Project (PPP Infrastructure Project) In Lao P.D.R. Ministry of Public Works and Transport Lao Peoople's Democratic Republic (Lao PDR) July 2015.

Table 6.1: List of plant species recorded in the Flora Survey Site

No_	Scientific name	Type	Number of Flora	IUCN Status
1	*Adenanthera pavonina L. var. pavonina*	Tree	1	LC
2	*Baccaurea ramiflora Loureiro*	Tree	1	LC
3	*Capparis micracantha DC.*	Tree	2	
4	*Dillenia indica*	Tree	1	LC
5	*Diospyros chevalieri H. Lec. var. mekongensis*	Tree	2	LC
6	*Ficus hispida*	Tree	1	LC
7	*Lagerstroemia balansae*	Tree	1	
8	*Lepisanthes rubiginosa*	Tree	5	
9	*Maesa ramentacea Wallich*	Tree	1	
10	*Markhamia stipulate*	Tree	1	
11	*Sandoricum koetjape*	Tree	24	LC
12	*Sterculia setigera*	Tree	1	LC
13	*Streblus asper (Retzius) Loureiro*	Tree	6	LC
14	*Symplocos racemosa Roxburgh*	Tree	1	
15	*Wrightia arborea (Dennstedt)*	Tree	2	
16	*Goniothalamus saigonensis Pierre*	Tree	1	
17	*Leea rubra Blume ex Sprengel*	Tree	2	
18	*Murraya paniculate*	Tree	3	
19	*Bauhinia glauca (Wallich ex Benth)*	Clinging	1	LC
20	*Combretum acuminatum Roxburgh*	Clinging	2	
21	*Cyclea barbata*	Clinging	1	
22	*Dioscorea sp.*	Clinging	1	
23	*Lagenaria siceraria*	Clinging	1	
24	*Lygodium flexuosum*	Clinging	1	
25	*Mucuna pruriens*	Clinging	6	
26	*Paederia tomentosa Blume*	Clinging	7	
27	*Phakhard*	Clinging	1	
28	*Smilax macrophylla Roxburgh*	Clinging	3	
29	*Stixis suaveolens (Roxburgh)*	Clinging	1	
30	*Tetracera sarmentosa*	Clinging	1	

No_	Scientific name	Type	Number of Flora	IUCN Status
31	*Toxocarpus villosus (Blume) Decaisne var. thorelii Cost.*	Clinging	2	
32	*Uvaria cordata*	Clinging	2	
33	*Arenga westerhoutii Griffith*	Grass	7	
34	*Cordyline fruticosa*	Grass	1	
35	*Ageratum conyzoides*	Grass	4	
36	*Digitaria sanguinalis*	Grass	33	
37	*Fimbristylis dichotoma*	Grass	1	
38	*Ya pae*	Grass	5	
39	*Bambusa Blumeana - thorny bamboo*	Bamboo	1	
40	*Oxytenanthera parvifolia Br. (Gigantochloa parviflora)*	Bamboo	5	
		Total	143	

During the site visit local communities were interviewed and they confirmed that any areas of forest within the vicinity of the Dry Port had mostly been cleared due to rapid urbanization, demand for agriculture (paddy fields and fruit trees) and large infrastructure projects including the Long Thang Special Economic Zone, Dongphosy Railway, Xiengda -Dongphosy Road and the Dry Port.

The habitats present on the study plot are typical and representative of areas of remaining habitat within the vicinity of the Dry Port. Habitats are highly degraded with areas of settlements and characterized by fruit tree planting and subsistence farming interspersed with forest habitats. These activities have resulted in degraded and highly fragmented areas of forest habitat and as such they are considered modified and do not represent areas of natural habitat and do not support the principal characteristics and functions of a native ecosystem.

During the site visit the local communities were asked about the presence of species of conservation concern and no records of these species were disclosed. Common species of bird and reptile are still present in representative areas outside of the Dry Port area and it has to be assumed that they would have been present in the Dry Port area prior to site wide habitat clearance. Species reported during the site interviews include Oriental Ratsnake (*Ptyas mucosus*) and Monocled Cobra (*Naja kaouthia*) as well as common and widespread species of birds including Greater Coucal (*Centropus sinensis*), Black Drongo (*Dicrurus macrocercus*) and Long-tailed Shrike (*Lanius schach*).

No animal species of conservation concern were recorded during the site visit.

6.2.1.4 Conclusion

Based on the results of the desk study and site survey it is considered likely that the area of the Dry Port would have previously supported natural habitats and this habitat could potentially have supported species of international conservation concern and those that are included in the IBAT report. That said, it is obvious from the review of available data that habitats within the Dry Port area have been subject to significant levels of degradation since the inception of the Dongphosy Railway in 2007/08. Any habitats remaining on the Project site since the inception of the Dry Port project would have been heavily degraded and the amount of degradation is very likely to result in modified habitat. As such it is considered that the Dry Port project has not impacted on areas of habitat that would be considered as natural,

With regards to the impacts of the Project on species of conservation concern it is possible that the degraded forest habitat could have previously supported some species of conservation concern, notably Sunda and Chinese Pangolins, however given the significant levels of impact on these habitat areas since 2007/08, and that both of these species are widely collected when encountered, the presence of either species within the Project area is considered unlikely. It is therefore considered that the clearance of any remaining habitat within the Dry Port area by the Project is very unlikely to have impacted on species of international conservation concern.

6.2.2 Presence of Ecosystem Services

From the field survey of the area is clear that degraded forest areas around the Dry Port and paddy fields still play some role for ecosystem services through provisioning services as well as some, albeit limited, function as a regulating habitat. The areas of habitat adjacent to the site, as well as habitat previously supported on the Project site is, and was, used by subsistence farmers for food crops, including fruit trees in areas of cleared and managed forest. Any loss of provisioning ecosystem services is discussed in more detail within the Social Impact Assessment regarding loss of land and impact of the scheme on local communities, including subsistence farmers.

In addition, the areas of habitat would have also provided some limited regulatory function through 'buffering' from rapid urban expansion and development within the Project site as well as the wider area. Habitat areas would have provided some level of screening from adjacent areas of the built environment including possible reduction in noise and air pollution.

6.3 Socio-Economic Baseline

6.3.1 Demographic Profile

The two local districts of Hadxayfong and Xaysettha are located in the Vientiane Prefecture, the capital of which is the national capital of Vientiane.

Hadxayfong District has a total of 102,632 individuals among which 51% are women, residing in 21,238 households across 60 villages. There is an average of 4.8 persons per household, slightly lower than the national average of 5.3[8] and the population density is 398 people per (pp) km2, higher than the Vientiane average of 209pp/km2 but lower than the national average of 32pp/km2.9

Xaysettha District is one of the four urban core districts of Vientiane Capital and is divided into two zones: The urban core comprising 17 villages, and the suburban area encompassing 13 villages. As of October 2021, the District has a population of 114,607 among which 51% are women, residing in 25,570 household across 48 villages. There is an average of 4.4 persons per household and the population density is 756pp/km2.

Four villages within these two districts are located within the Thanaleng Dry Port Project's indirect AoI as shown in Figure 6.6: Location of the Local CommunitiesFigure 6.6. Three villages of Dongphosy, Dongphonhae and Thanaleng in Hadxayfong District and Nakhoua Tai village in Xaysettha District, which have a collective total of 9,029 residents in 1,799 households.

Table 6.2: Demographic Profile of Villages in Project AoI

District	Village	Population			Household	Average HH size
		Female	Male	Total		
Hadxayfong	Dongphosy	1,673	1,315	2,988	569	5.25
	Thanaleng	950	1,043	1,993	397	5.02
	Dongphonhea	847	806	1,653	348	4.75
	Subtotal/ average	***3,470***	***3,164***	***6,634***	***1,314***	***5.01***
Xaysettha	Nakhoua Tai	708	1,684	2,392	485	4.93
Total		**4,178**	**4,848**	**9,026**	**1,799**	**4.97**

The location of the four villages in relation to the Project area is shown in Figure 6.6 below, with the village boundaries and residential areas highlighted.

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8 https://lao.unfpa.org/sites/default/files/pub-pdf/PHC-ENG-FNAL-WEB_0.pdf

9 https://data.worldbank.org/indicator/EN.POP.DNST?locations=LA

6.3.2 Indigenous Peoples & Ethnic Minority Groups

Laos is a highly ethnically diverse country with 49 ethnic groups officially recognized by the national government, generally grouped into three categories of Lao Loum (lowland), Lao Theung (midland) and Lao Sung (highland).[10] No specific group is officially recognized as indigenous peoples. The Lao ethnic group comprises over half of the national population, with smaller groups primarily based in the mountainous regions including the Hmong, Khammu and Phounoi.

While official statistics are not maintained at the district or village levels on the ethnic composition of the populations, discussions with the authorities indicate that there are a very small number of households dispersed throughout the four local villages. Among those affected by Project displacement (as discussed further in the Land Review), there are one Hmong and one Phounoi households. The Hmong comprise approximately 9% of the national population, while the Phounoi group is dispersed throughout southeast Asia. At the national level, ethnic minorities generally experience lower levels of income and education compared to the dominant Lao group.

Given that these identified households in the local villages are well-integrated into mainstream Lao society, speaking fluent Lao, having resided in the area for decades, and in one instance being married to a Lao spouse, these two individuals are not considered to experience particular vulnerabilities or discrimination as a result of their ethnicity. In addition, there are no ethnic minority groups present in the area with collective, historical attachment to the local lands or natural resources. Thus, IFC PS7 on Indigenous Peoples is considered to be non-applicable in the context of this Project as none of the ethnic groups present in the AoI meet the criteria to be considered Indigenous Peoples.

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[10] https://minorityrights.org/country/laos/

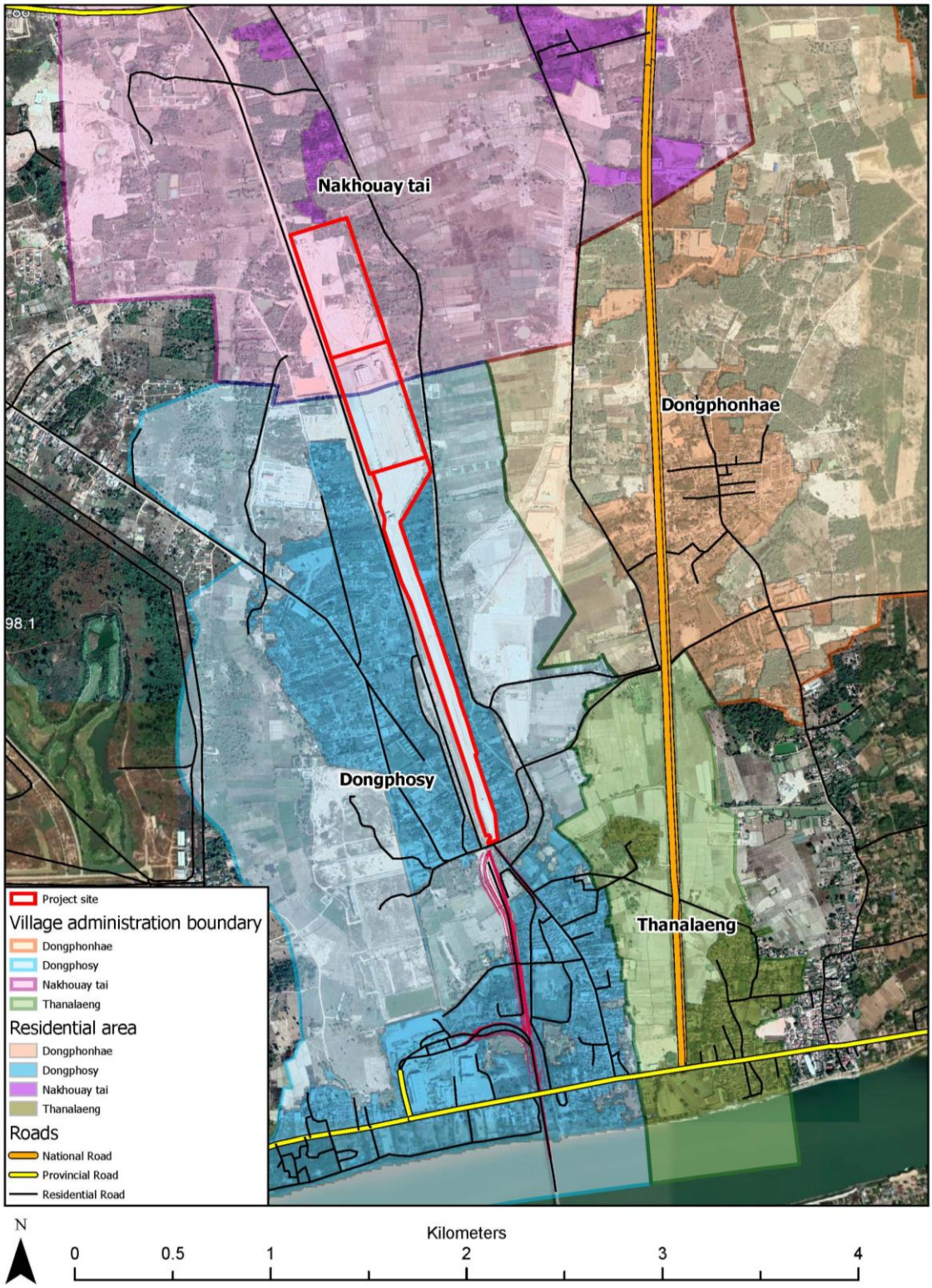

Figure 6.6: Location of the Local Communities

6.3.3 Poverty & Vulnerabilities

The proportion of the national population living under the poverty line, defined as living on less than 5.7 million LAK/person per year,[11] has fallen from 24.6% in 2013 to 18.3% in 2019. The rate of poverty reduction has been particularly rapid in rural areas while urban poverty reduction has stagnated in contrast, with the poverty headcount in Vientiane Capital growing from 2.5% in 2013 to 5% in 2019.[12]

Incidences of poverty are closely associated with the following types of households, due to factors including lower access to resources, assets and gainful employment:

- ✓ Head of household that is unemployed and has attained a low level of education;
- ✓ Elderly woman as head of household;
- ✓ Insufficient access to agricultural land;
- ✓ Daily laborer as head of household, earning minimum wage (1.1 million LAK/month) or less;
- ✓ Household with member suffering from drug addiction

Among the four local villages, Dongphonhae has the highest number of households (10) living under the poverty line, which includes households headed by elderly women with poor health or disabilities, and households with members unable to work as a result of suffering from drug addiction. Such households are understood to subsist on food supplied by neighbors and collection of recycling waste. In general, the poverty rate in the Project's indirect AoI as shown in Table 6.3 is significantly lower than the national rate of 18.3%.

Table 6.3: Poverty Rates in Project AoI

District	Village	Total Households	Households Living in Poverty (%)
Hadxayfong	Dongphosy	569	Not available
	Thanaleng	397	5 (1.3%)
	Dongphonhae	348	10 (2.9%)
Xaysettha	Nakhoua Tai	485	5 (1%)
Total		**1,799**	**20 (1.6%)**

6.3.4 Community Infrastructure

6.3.4.1 Health

Given the Project's location in the Vientiane Capital, the local communities have access to many health care facilities, both governmental and private. The main government hospitals include Mahosot, Setthatirath, and Mittaphap Hospitals, with a hospital also based in each district. Private hospitals available include the Kasemrad International, Vientiane Hanoi, and Lao Asian Hospitals among others. Each village also has pharmacies, and public hospitals are easily accessible for four villages with a 15-to-20-minute journey.

The village authorities did not indicate a particular outbreak of disease among the local communities in recent years, with the exception of the COVID-19 pandemic which has affected communities across Vientiane Capital and Laos since March 2020. The most common health conditions reported in the Vientiane Capital area are high blood pressure (hypertension), diabetes, dengue fever, malaria and hepatitis. Drug addiction to substances including amphetamines and opium also continues to be a significant public health issue in Laos, with the country experiencing one of the highest opium addiction rates in the world.[13]

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[11] Prime Minister Decree on the Eradication of Poverty Criteria and Development Criteria No. 348/GoL, dated 16 November 2017 and Guideline on Implementation the Decree on the Eradication of Poverty Criteria and Development Criteria No. 830/MOAF, dated 06 April 2021)

[12] Poverty in Lao PDR, the Lao Expenditure and Consumption Survey, 2018-2019, Lao statistic Bureau

[13] https://www.unodc.org/unodc/en/alternative-development/laos.html


Figure 6.7: Local Health Centres (Hadxayfong District Hospital and Xaysettha District Hospital)

6.3.4.2 Education

The literacy rates in the four local villages range from 95% to 100%, higher than the national rate of 85%.[14] Overall, most children under the age of five are enrolled in early childhood education and all children are enrolled within primary, lower secondary and upper secondary schools in accordance with their ages. The number of students enrolled at public schools in each village are shown in Table 6.4.

Table 6.4: Number of Students in Public Schools, 2021

District	Village	Female	Male	Total
Hadxayfong	Dongphosy	84	103	187
	Thanaleng	255	279	534
	Dongphonhea	42	57	99
Xaysettha	Nakhoua Tai	N/A	N/A	N/A

The list of schools situated in the four villages are presented below, in addition to photographs of select institutions.

Table 6.5: School Attendance across Local Communities, 2021

Village	Primary	Lower Secondary	Upper Secondary
Dongphosy	Dongphosy Primary School (public) Saengsavanh 2 School (private)	Saengsavanh 2 School	
Thanaleng	Thanaleng Primary School (public) Viengsavanh School 2 (Private)	Viengsavanh School 2 (Private)	
Dongphonhea	Dongphonhea Primary School (Public)	None	
Nakhoua Tai	Nakhoua Tai Primary School (Public)	Nakhoua Tai lower and upper secondary school	

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[14] https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=LA

Figure 6.8: Local Schools (Nakhouay Tai Primary School and Saengsavanh 2 School)

6.3.4.3 Housing

There is a wide variety of types of housing in the four local villages, ranging from luxury houses to modern houses, Lao traditional homes, and wooden structures, as shown in Figure 6.9 below.

Figure 6.9: Examples of Housing Types (Nakhou Tai and Dongphosy Villages)

6.3.4.4 Public Infrastructure

Given their location in Vientiane Capital, all four local villages have good access to key public infrastructure and facilities.

There are concrete pavement roads and good connections to the rest of the city and country. Public transport is available in Dongphosy, Tanaleng and Nakhouay Tai village with the fee for a public bus trip of 8,000 LAK from the villages to Morning Market, one of the central markets in the area.

100% of the households are connected to the electricity grid and approximately 90% of households have domestic access to safe water supplies from Nampapa Nakhone Luang, the state enterprise company responsible for water provision in Vientiane Capital. All households have access to a private toilet with pour-flush function. The mobile signal coverage is good across Vientiane Capital, with 100% of households owning mobile phones. Waste collector service companies collect the solid waste from each village and transport them for disposal at KM36 Landfill which is located about 20km from the area.

Figure 6.10 below shows the location of key community facilities in the area, including the primary and secondary schools and health clinics.

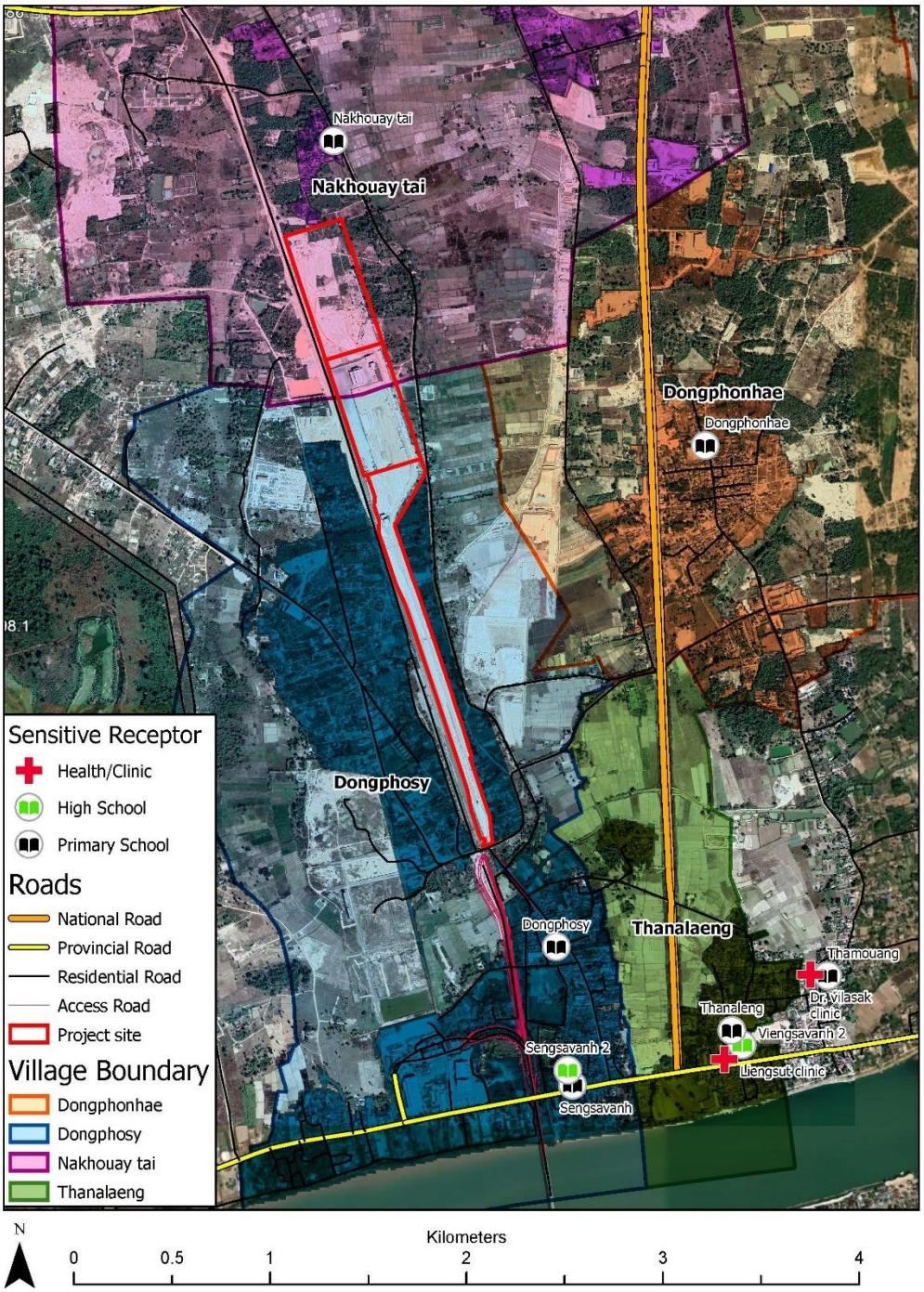

Figure 6.10: Location of Key Community Infrastructure & Facilities

6.3.5 Livelihoods and Income

The primary sources of livelihoods within Dongphosy, Dongphonhae and Nakhouay Tai villages are farming and daily labor at locations such as construction sites, as shown in Figure 6.11 below. Dongphosy villagers particularly rely on farming as the main source of income, with 80% engaged in this activity to cultivate rice as commercial and subsistence crops through the use of both irrigation and rain-fed methods. In Dongphonhae, approximately 70% of the residents are farmers, with the watermelon being the main commercial crop cultivated throughout the year while

rice is the primary subsistence crop. Commercial crops are sold to consumers at local markets near the villagers such as Haikham and Nonekhor Markets or sold directly to middlemen who serve as intermediaries between producers and consumers. While the chemical processing plant 5N Plus Laos Factory is situated in Dongphonhae, local residents are generally not employed here due to the technical expertise required.

In **Nakhoua Tai** village, half of the residents are farmers while the remaining half are involved in wage labor. Similar to the other villages, rice is the principal commercial and subsistence crop in both dry and wet seasons.

In contrast, the main source of income for the **Thanaleng** villagers is wage labor, with most men employed as wage laborers at the Thanaleng Warehouse, a 6-hectare development located in the village near the Lao-Thai Friendship Bridge. A smaller proportion are also employed as governmental officials.

The COVID-19 pandemic directly impacted residents' livelihoods, with income decreasing for both day and wage laborers due to ongoing movement and social restrictions.

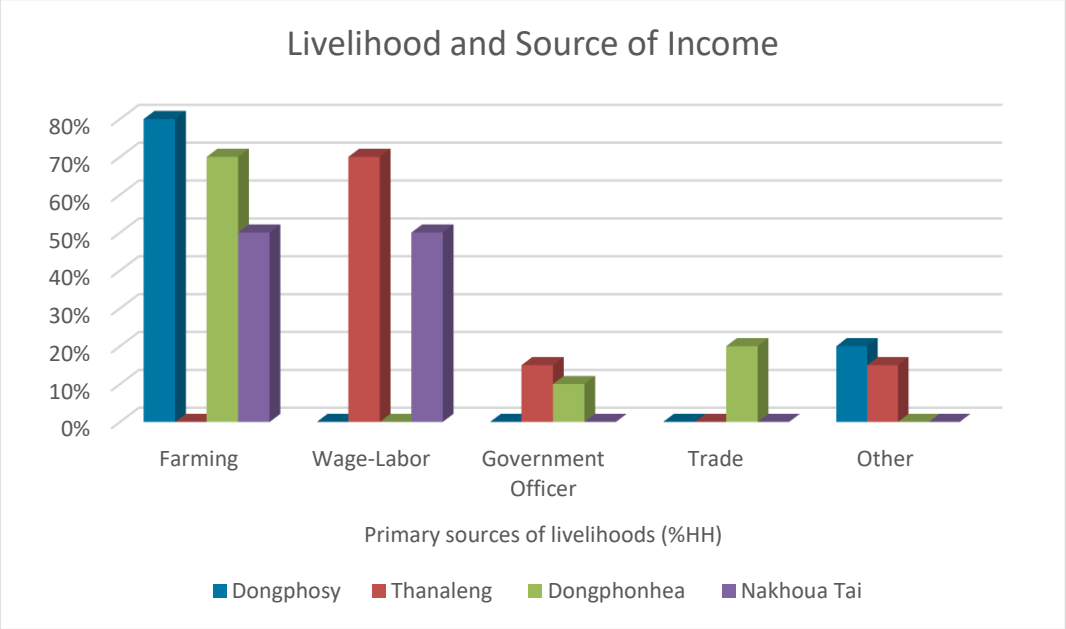

Figure 6.11: Sources of Income in Project AoI

The below figure demonstrates examples of the agricultural livelihood activities conducted in the local communities.

Figure 6.12: Agricultural Livelihood Activities (Commercial Watermelon Crop in Dongphonhae Village and Rice Shop)

6.3.5.1 Livestock Rearing

There is very limited availability of land in the local villages for grazing purposes. As a result, only a small number of households keep livestock, making use of their rice fields and adjacent areas for grazing. The livestock is reared for commercial purposes, sold directly to middlemen. The below table shows the number of livestock maintained in each village, followed by the number of households that own them.

Table 6.6: Livestock Rearing per Local Village, 2021

Village	Buffalo (# of HH)	Cow (# of HH)	Goat (# of HH)
Dongphosy	-	150 (15)	200 (N/a)
Thanaleng	-	35 (4)	16 (2)
Dongphonhea	48 (1)	261 (9)	70 (N/a)
Nakhoua Tai	15 (1)	55 (5)	-
Total	**63 (2)**	**501 (33)**	**286 (2)**

6.3.6 Land Use and Tenure

The Department of Land under Ministry of Natural Resources and Environment (MONRE) is the main governmental authority responsible for land administration. The new 2020 Land Law recognizes land uses rights of individuals, legal entities, collectives and organizations of Lao citizens and stipulates that these rights are to be managed through registration in land books, certification of land use, issuance of land titles and registration of transfer and changes of land use rights. The land title is the primary document that proves land use rights.

There are two land registration methods by which individuals can register the land which they are using lawfully. First is systematic land registration, which is carried out throughout a designated area where land allocation, zoning, or classification is required. Systematic registration confers a Land Title. Second, persons or entities can make application to certify their right to use certain land. Land certificates are issued certifying the temporary right to use agricultural or forest-land which is issued by district level authorities

During the past two decades, it has become a common practice in Laos for individuals to claim land ownership over plots that they do not legally own and sell such plots despite lacking a formal land title, after having their ownership certified by the village authorities. The process to obtain a land transfer certificate only required an agreement between the buyer and seller, payment of the land use tax and the certification of village authorities, often obtained through bribery. In this manner, some buyers were also able to have land titles issued by PONRE, using the land use tax payment or land certificate as evidence of their ownership.

Following the enactment of the 2020 Land Law, the requirements for formal land purchase are more widely known and thus this informal form of land transaction has reportedly become less common.

Within the four villages located in the vicinity of the Project area, privately held land plots cover nearly all areas, which are primarily agriculture land in the form of paddy fields, ranging from 0.8 to 2 ha. Most households have formal land titles for the village plots where their main dwellings are based. Some of the larger agricultural land parcels are owned by non-local individuals, and either used or rented out for commercial agricultural purposes.

Types of land use in the four villages are presented in Table 6.7 below

Table 6.7: Land Use Patterns of Local Villages, in hectares

#	Type	Village			
		Dongphosy	Thanaleng	Dongphonhea	Nakhoua Tai
1	**Private Land**	**611.16**	**82.09**	**429.1**	**937.86**
1a	Construction Land	103.73	28.79	173.5	33.46
1b	Agriculture Land	236	53.3	255.6	904.4
1c	Business Land (market, logistic part etc.)	271.43	-	-	-

#	Type	Village			
		Dongphosy	Thanaleng	Dongphonhea	Nakhoua Tai
2	**Public Land**	**151.52**	**5**	**2.35**	**5.5**
2a	Village Land (Temple, School, Village office)	40.52	5	2.35	5.5
2b	Government and state enterprise office	111	-	-	-
2c	Forestry/industrial plantation	-	-	45.5	-
2d	Road	N/A	N/A	N/A	N/A
2e	Water	N/A	N/A	N/A	N/A

6.3.7 Gender Relations

The equal rights and participation of women and men in economic, social and political life is supported by the Lao Constitution, various national laws and policies, and international treaties that Laos has ratified such as the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). Women and men also have equal status under the law with regard to land tenure, property ownership and inheritance rights.

Women's political representation in the National Assembly is among the highest in the region at 27.5% as of 2020, although this increased representation has not filtered down to provincial and local levels. In the Project's AoI, women are well represented among the village-level authorities, particularly in roles related to finance, with at least two among the five leadership roles filled by women across the villages.

Across Laos, the adult literacy rate for women is lower at 70% compared to 85% for men, however school attendance and literacy levels are generally equivalent across men and women in the local villages. At the national level, women also face specific health risks related to early marriage and pregnancy and maternity, with a maternal mortality rate of 405 deaths per 100,000 live births compared to the global average of 152.[15]

Women of Laos are active participants in the national economy, with 73% of women compared to 78% of men contributing to the country's labor force, among the highest rates in the Southeast Asian region. In particular, women are an integral part of the agriculture sector in Laos, comprising over 50% of the agricultural workforce and significantly involved in all parts of agricultural production.[16] On average, female-headed households involved in the agricultural sector have less household labor and productive assets than their male counterparts.

Other gender inequalities in the economy include longer work hours for women as they spend 7 hours per day on productive and reproductive tasks, compared to the 5.7 hours spent by men. Women increasingly are running their own businesses, but these tend to be smaller than those owned by men. Women have also reported greater difficulty finding access to finance and technical skills.

Laos does not have a systematic reporting system for monitoring domestic violence, but several studies suggest prevalence rates in keeping with regional averages, with 15% of women aged 15 to 64 reporting at least one incident of physical and/or sexual violence by their partner in their lifetime.[17] It is reported that most domestic violence disputes are handled either by village authorities or informally within the community, where the focus is more often on maintaining family unity than on protecting women, leaving victims vulnerable to ongoing abuse and violence.

At the local level, local authorities did not indicate particular gender inequalities in terms of political, economic, cultural and social spheres. Women and men are generally engaged in similar activities in the agricultural sector in terms of cultivation and marketing, while governmental roles are filled by both genders and daily labour including employment at warehouses and construction sites are generally undertaken by men. No community issues related to women's safety or gender-based violence were reported.

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15 https://www.adb.org/sites/default/files/institutional-document/33755/files/cag-lao-pdr.pdf

16 https://www.fao.org/3/CA0154EN/ca0154en.pdf

17 https://evaw-global-database.unwomen.org/fr/countries/asia/lao-peoples-democratic-republic

6.3.8 Migration

Internal migrants constitute a significant population in Laos, with approximately 17% of the population in 2015 being considered 'lifetime migrants', defined as those who are residing in a different district from the one in which they were born.[18] Migration patterns tend to comprise movements of rural populations to urban areas, in particular Vientiane Capital, where 4 in 10 people are lifetime migrants.

Local statistics are not available on the inbound and outbound migration figures. The authorities of the four local villages did not indicate any significant migration patterns noted in their communities, but did reference the arrival of newcomers in recent years due to improved road conditions and easy access to the rest of the city, and sporadic movements of individuals who move in and out of the area due to marriage. Migrants from other provinces in search of job opportunities and to attend educational institutions were also reported, however they are considered temporary migrants and do not formally register as residents in the villages as they return to their home districts each year.

Village authorities did not indicate an influx of newcomers related to the establishment of industrial projects in the area in recent years, such as the Lao-Chinese and Lao-Thai railway projects, Namtha real estate company development and the Dry Port Project.

6.3.9 Community Health and Safety

Major community health and safety issues in the local area include increased industrial pollution, traffic congestion, and roads and infrastructure construction as a result of rapid urbanization, as well as poor vehicle and road maintenance. These have resulted in poor air quality, with residents reporting adverse impacts from traffic-induced noise and air pollution, particularly during the rush hours and the departure and arrival of trucks at the Thanaleng Warehouse. Dongphonhea villagers have also complained about the air pollution and odor created by the 5N Plus Laos Factory (shown in Figure 6.13 below) located in the village area. It is understood that these aspects will be addressed through a separate cumulative impact assessment to be developed.

Figure 6.13: 5N Plus Laos Factory in Dongphonhea Village

6.4 Cultural Heritage

6.4.1.1 Legislation and Permit Requirements

The key relevant national legislations comprise the Law on National Heritage (2005), Law on Environmental Protection (2013) and Decree on Environmental Impact Assessment (2019).

The Law on National Heritage's Article 33 requires any individuals or organizations that encounter items of cultural heritage during any activities to report the finding to the relevant local administration and information and culture sector, and suspend activities until approval is granted. The Law on Environmental Protection's Article 16 requires any individuals or organisations engaged in activities that cause adverse environmental impacts to cultural and historical heritage sites such as archaeological, historic, traditional and tourism sites to comply with the regulations

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[18] https://bangkok.unesco.org/sites/default/files/assets/article/Social%20and%20Human%20Sciences/publications/laos.pdf

and measures issued by the relevant sectoral and local administration agencies. Article 29 of the same law requires the preservation, reconstruction and restoration of structures of historical, cultural and national importance.

The 2019 Decree's Article 12 (4c) requires assessment of direct and indirect impacts on items of cultural and architectural heritage and antiquities as part of the ESIA study. As part of this requirement, the cultural heritage survey is to be conducted concurrently with the ESIA study to confirm the presence of any items of national heritage within or near the proposed development area. If this is confirmed, the developer must submit a formal letter to Information, Culture and Tourism (ICT) sector to investigate and assess. Based on the level of significance of the heritage site, ICT will advise on the permit requirement, and the Project developer will work closely with the sector to identify the mitigation measures and prepare management and monitoring plans. If national cultural heritage sites within the vicinity are not identified, ICT will endorse this through a confirmation letter.

6.4.1.2 Cultural Heritage Sites in Project AoI

Based on consultations with representatives of the Hadxayfong District's Information and Cultural Office and village authorities, there are no known archaeological or cultural heritage sites within the Project area. In Laos in general, villages with a Buddhist-majority population have at least one temple and this is the case in the local communities. As displayed in Figure 6.14 below, Nakhouay Tai Village has three temples, Dongphosy has two temples, Dongphonhae and Thanaleng has one temple.

The temple or 'Wat' in the Lao language is the place of worship that Buddhists attend on a biweekly basis to worship Buddha and give offerings to monks. The temple is also frequented for religious festival days such as Makabusa Festival and Buddhist Lent, as well as for funeral ceremonies.

Religion is closely associated with ethnicity in Lao. In general, the Lao people are Buddhist and believe in spirits, souls, and the supernatural. Almost all households in the local communities are Buddhist, with the previous ESIA identifying only four families that are Catholic in Dongphosy and one in Nakhuay Tai who holds spiritual beliefs.

The Lao ethnic group in the surrounding villages are Buddhist. The Lao ethnic group respects Buddhism with a central monastery, an important source of religious unity and practices, as well as animistic beliefs. Besides this, there are also worships for entities such as ancestral, house, forest, village, river, and cemetery spirits. Among these, the most important is the house spirit and thus each practising house has a place of worship (the house of angels), which is the place of the dead spirits of the ancestors. The Lao have many traditional festivals throughout the Lao calendar, such as Deuan Har (Lao New Year), Duean Kao (for prayers for ancestors) and Deuan Sip (for preparation for harvesting). Among the Catholic populations, mass is attended at church every Sunday, led by ordained priests. Significant days include Easter Sunday, Ash Wednesday and Christmas.

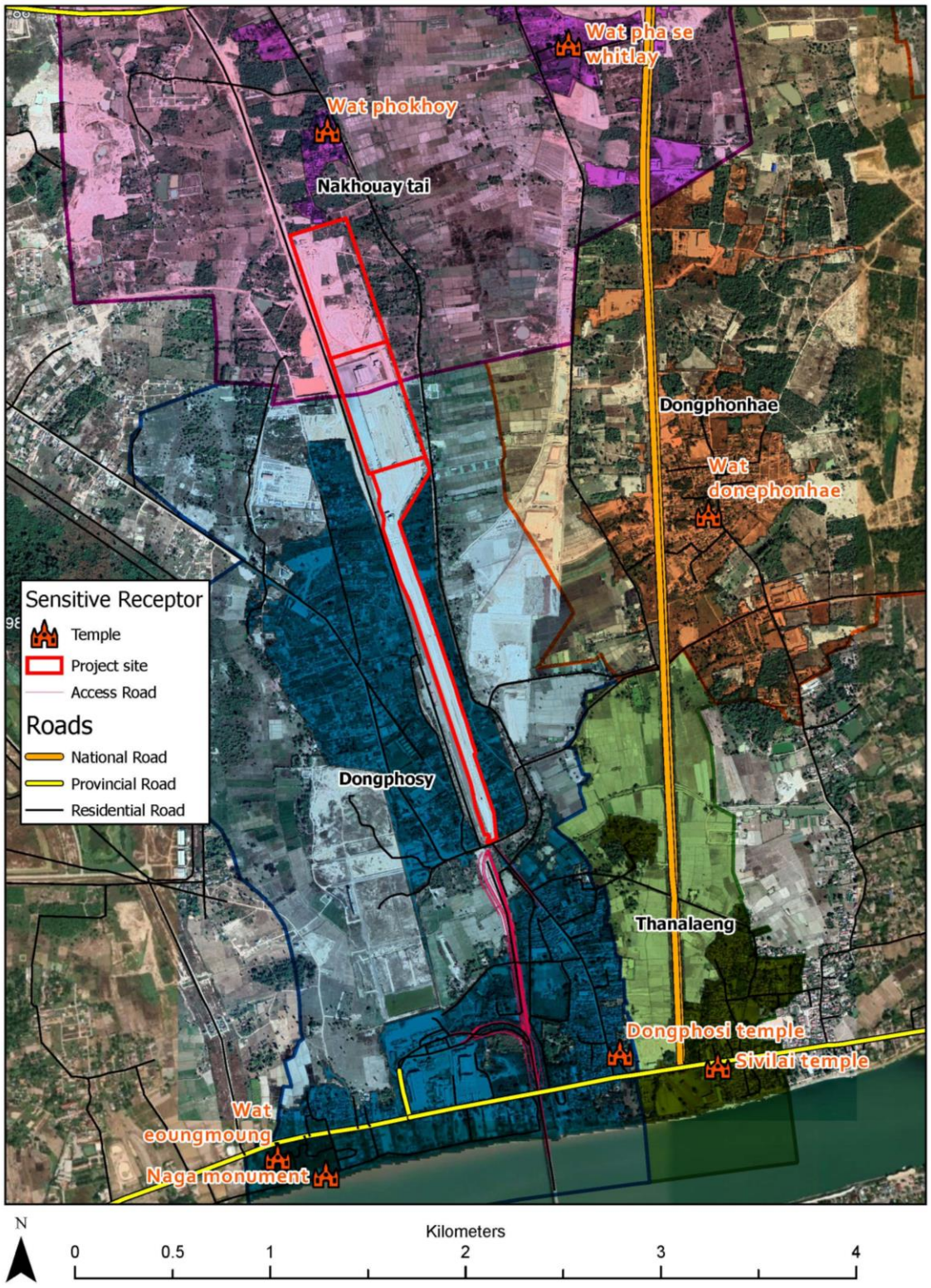

Figure 6.14: Location of Temples in Local Communities

6.5 WASTE AND WASTEWATER

The current waste collection system in Vientiane Capital is based solely on a collection and disposal practice. There are 12 private waste collection contractors appointed by the Vientiane City Office for Management and Services (VCOMS). VCOMS oversees overall waste issues including the collection, transport and disposal of solid waste produced in Vientiane. It is estimated that the daily waste generated by the city is around 400 tons/day which is transported to the landfill site located approximately 25 km from the project site..

The land fill has an area of around 100 ha; of this 50 ha is operated by VCOMS and another 50 ha has been allocated to private waste companies to operate.

Figure 6.15: Arial View of the Landfill Site

In the project area there are two private companies SKD Cleaning Company, and SS Cleaning Service Company and one government office, VCOMS that provide services of waste collection. There are around 40 tonnes of waste collected in Hatxayfong district by these three parties, which is only 30% of the total waste generated[19].

From VCOMS information it is estimated that the current land fill site capacity can sustain the waste from the city for another 8-10 years before it reaches its limit[20]. There is thus a need to introduce more effective landfill management and waste separation and recycling initiatives at source.

The project is not reliant on any wastewater treatment facilities provided by the City or other suppliers and as such this has not been detailed any further in the project baseline.

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19 Solid waste management in Vientiane 2019, Lao PDR report, GGGI

6.6 CONTAMINATED LAND

There are two facilities that could have potentially resulted in historical contamination on the site. These being the container yard operated by Lao Logistics State Enterprise and the quarries, to the North of the site, that we believe were operated by the Department of Railways.

The Dry Port is adjacent to Dongphosy Railway Station, for which construction commenced in 2006 and was completed in 2009. Prior to the construction of the Dongphosy Railway station in early 2006, large parts of the area in the vicinity of the Dry Port were dominated by forest with agricultural areas to the south-west and residential areas to the north, north-East and south along main road from Nakhouay Tai to Thanaleng village. There are no records of any industrial activities in the current Dry Port area. Interviews with the local and village authorities have confirmed this is the case.

To verify the potential contamination deriving from this past activity, VLP requested information from Lao Logistics State Enterprise (the former operator of the container yard). Lao Logistics State Enterprise provided a letter attesting that between the period of 06/06/2016-to 23/05/2021 the Lao Logistics State Enterprise conducted logistic operations at the CY area before handing over the area to VLP. The letter also states that no underground storage was built in the area and no contamination occurred during the mentioned operation period.
We have received no further information regarding the historical quarrying activities.

6.7 CLIMATE CHANGE

Lao People's Democratic Republic has a tropical climate, influenced by the southeast monsoon which causes significant rainfall and high humidity. The climate is divided into two seasons: wet - or monsoon – season, from May to mid-October, and dry season, from mid-October to April. At Country level, the average annual rainfall is in the range 1,300-3,000 mm, whereas the average temperatures are around 20°C in the northern and eastern mountainous areas and around 26°C in the plains.

Specifically, in Vientiane Capital province where the Thanaleng Dry Port Project will be implemented, the annual average temperature over the period 1991-2020 has been of 23.9°C, with a minimum average in January of 19.5°C and a maximum average in June of 26.1°C. The extreme values found over the same 30-year period are of 13.9°C in January and 30.9°C in May. The temperature increase rate in the period 1951-2000 has been in the range 0.1-0.3°C/decade, whereas after 2000 it has increased to 0.5°C/decade, having recorded an increase by 1°C of the average temperature in 20 years.

As concerns precipitations, in Vientiane Capital province the average values for the period 1991-2020 have been between 5 mm/month in December and 341 mm/month in August. The annual precipitations have always been in the 20th century (1901-2000) around 1,500 mm/y, whereas in the last twenty years they have experienced a significant decrease (the five-year average 2016-2020 is of 1,340 mm/year) accompanied by significant year-to-year variations (2,170 mm/y in 2011, 1,183 mm/y in 2019 were the two extreme years).

The expected changes in climate patterns for the future decades, according to RCP4.5 and RCP8.5, foresee:

- ✓ in the short-term (2020-2039), an increase of annual average temperature slightly below 1°C (RCP4.5) or slightly above 1°C (RCP8.5), almost constant during the year, with potential peaks in May of +3°C (RCP4.5) or +3.4°C (RCP8.5); almost no variation in the average level of precipitations but with potential peaks of +180 mm/month or -110 mm/month (RCP4.5 and RCP8.5);
- ✓ in the medium-term (2040-2059), an increase of annual average temperature by 1.5°C (RCP4.5) or 2°C (RCP8.5), more concentrated in the dry season, with potential peaks in May of +4°C (RCP4.5) or +4.8°C (RCP8.5); an increase of the annual precipitations by 10-20 mm/month but with potential peaks of +170 mm/month or -120 mm/month (RCP4.5 and RCP8.5);
- ✓ in the long-term (2040-2059), an increase of annual average temperature by 2°C (RCP4.5) or 2.8°C (RCP8.5), more concentrated in the dry season, with potential peaks in May of +4.8°C (RCP4.5) or +7.4°C (RCP8.5); an increase of the annual precipitations by 10-20 mm/month but with potential peaks of +200 mm/month or -100 mm/month (RCP4.5 and RCP8.5).

Based on the trends experienced in the last decades and on those foreseen in the upcoming ones according to the different scenarios, it is expected that the area could be subject to climate-related risks of different type and magnitude from year to year and in different seasons of the year, also as a consequence of extreme weather events.

The identified hazards are mainly related to floods and storms in the wet season and to droughts in the dry season; in addition to these two main phenomena, landslides might occur during the whole year, as a consequence of the other effects of climate change on the soil.

These risks might potentially result into a more difficult operation of the project site in terms of accessibility, which is a key pre-requisite for the Project, into damages to the project assets requiring extensive remediation works or increased maintenance with related costs, etc. Moreover, further to the risks for Project assets, additional hazards may arise for the health&safety of personnel working at the Project site, who might suffer from the worsening of working conditions.

The detailed Climate Change Risk Assessment that will be completed in March 2022 will evaluate the magnitude and likelihood of the potential climate-related physical risks for the Project, review the Project engineering design to analyze actions already implemented and foreseen to mitigate such effects and potentially propose additional actions to further mitigate them. The evaluation will be carried out for the short-, medium- and long-term and with reference to the RCP4.5 and RCP8.5 climate scenarios.

Moreover, the CCRA will include a section of the quantification of the GHG emissions related to the Project, based on available data, and one on the high-level evaluation of potential transition risks for the Project, i.e. those related with the global transition to a low-carbon economy, will be evaluated together with their likelihood, impact and with the potentially already implemented and further actions to mitigate their effects.

7 IMPACT ASSESSMENT

7.1 Methodological Approach

The methodological approached selected to be followed for assessing the E&S impacts[21] of the Project for the scopes of this S-ESIA is illustrated as follows.

7.1.1 Impact Assessment Parameters

The parameters used for assessing the E&S impacts, taken into consideration (and detailed below) are:

- ✓ Impact Type;
- ✓ Impact Duration;
- ✓ Impact Extent;
- ✓ Impact Scale;
- ✓ Impact Frequency;
- ✓ Likelihood;

Impact Type

- ✓ **Direct:** applies to an impact which can be clearly and directly attributed to a particular environmental or social parameter (e.g. dust generation directly affects air quality);
- ✓ **Indirect:** applies to impacts which may be associated with or subsequent to a particular impact on a certain environmental or social parameter (e.g. high levels of dust could entail nuisance and health effects to workers on site);
- ✓ **Induced**: applies to impacts that result from other activities (which are not part of the Project) that happen as a consequence of the Project;
- ✓ **Cumulative:** applies to impacts that arise as a result of an impact and effect from the Project interacting with those from another activity to create an additional impact and effect.

Impact Duration

- ✓ **Temporary:** applies to impacts whose effects are limited to a period of less than 3 years, or only associated with Project pre-construction or construction phases;
- ✓ **Short-Term:** applies to impacts with effects limited to a five-year period;
- ✓ **Long-Term:** applies to impacts with effects last longer than a period of five years, but limited to within the project lifetime;
- ✓ **Permanent:** applies to impacts with effects last longer than the life of project – i.e. irreversible.

Impact Extent

- ✓ **On-site:** impacts that are limited to the Project site;
- ✓ **Local:** impacts that are limited to the Project site and adjacent properties;
- ✓ **Regional:** impacts that are experienced at a regional scale;
- ✓ **National:** impacts that are experienced at a national scale;
- ✓ **Trans-boundary/International:** impacts that are experienced outside of Laos.

Impacts Scale

The scale of an impact is a quantitative measure, such as the size of the area damaged / impacted or the fraction of a resource that is lost / affected, etc. It is generally described using numerical values and units rather than assigned fixed designations.

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[21] An **impact** is any change to a resource or receptor caused by the presence of a Project component or by a Project related activity. Impacts can be positive or negative and are described in terms of their characteristics, including the impact type and the spatial and temporal features (namely extent, duration, scale and frequency). w

Impacts Frequency

The frequency of an impact is the measure of the constancy or periodicity of the impact, described using numerical values or a qualitative description.

Likelihood

Likelihood is a measure of the degree to which an unplanned event (e.g. incidents, spills) is expected to occur. The likelihood of the occurrence of an unplanned event is determined qualitatively, , or semi quantitatively (depending of the availability of information). For the scope of the this methodology, the likelihood is defined as follows:

- ✓ **Unlikely:** the unplanned event is unlikely to occur but might occur at some time during normal operating conditions;
- ✓ **Possible:** the unplanned event is likely to occur at some time during normal operating conditions;
- ✓ **Likely:** the event will occur during normal operating conditions (i.e. it is essentially inevitable).

A consistent approach to the assessment of impacts will be followed to enable E&S impacts to be broadly compared across the S-ESIA. A set of generic criteria are used to determine significance and are applied across the various environmental and social parameters.

7.1.2 Criteria for Assessing Significance

As far as possible, E&S impacts will be quantified. In case a proper quantification of impacts is not possible, a qualitative or semi – quantitative assessment is undertaken using professional judgement, experience and available knowledge. The assessment will be based on conservative assumptions and consider stakeholder's views of data limitations.

In order to determine the significance of an impact, the two following parameters are considered:

- ✓ magnitude and nature of impacts;
- ✓ importance and/or sensitivity of the environmental and social receiving parameter, as determined during the assessment of baseline conditions.

Magnitude of Impact

Once impacts are characterised through the parameters described in Section 7.1.1, above a magnitude of the impact is assigned.

Magnitude is defined as a function of the combination of the parameters defined above and depends on the sources and/or receptors considered for each impact that potentially affects the Project.

Magnitude, has to be considered as a continuum and its evaluation requires professional judgement and experience.

Each impact is evaluated on a case-by-case basis and the rationale for each determination is noted.

Magnitude definitions for negative effects are: **negligible, low, medium and high**. Such definitions are universally consistent, but need to be properly applied to each potential impact as follows:

- ✓ **High Magnitude Impact** affects an entire area, system (physical), aspect, population or species (biological). Such impact has sufficient magnitude to cause a significant measurable numerical increase in measured concentrations or levels (compared with legislated or international limits and standards specific to the receptors) (physical) or to cause a decline in abundance and/ or change in distribution beyond which natural recruitment (reproduction, immigration from unaffected areas) would not return that population or species, or any population or species dependent upon it, to its former level within several generations (physical and biological). A high magnitude impact may also adversely affect the integrity of a site, habitat or ecosystem;
- ✓ **Medium Magnitude Impact** affects a portion of an area, system, aspect (physical), population or species (biological) and at sufficient magnitude to cause a measurable numerical increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) and may bring about a change in abundance and/or distribution over one or more plant/animal generations, but does not threaten the integrity of that population or any population dependent on it (physical and biological). A medium magnitude impact may also affect the ecological functioning of a site, habitat or ecosystem but without adversely affecting its overall integrity. The area affected may be local or regional;

- ✓ **Low Magnitude Impact** affects a specific area, system, aspect (physical), group of localised individuals within a population (biological) and at sufficient magnitude to result in a small increase in measured concentrations or levels (to be compared with legislated or international limits and standards specific to the receptors) (physical) over a short time period (one plant/animal generation or less, but does not affect other trophic levels or the population itself), and localised area; and
- ✓ **Negligible Magnitude Impact** is hardly distinguishable from background conditions and expected development in a no-project situation or impact is very unlikely to happen.

In the case of positive impacts, no magnitude definition is assigned because for the purpose of the impact assessment it is considered sufficient to indicate that the Project is expected to result in a positive impact.

In the case of impacts resulting from unplanned events, in addition to other parameters, also likelihood is considered in the definition of the magnitude.

Sensitivity of the Receptor

In addition to the magnitude, another step needed to assign significance to an impact is to define the sensitivity of the receptor.

There are a range of factors to be taken into account when defining the sensitivity of the receptor, which may be physical, biological, cultural or human. As in the case of magnitude, the sensitivity definitions are universally consistent and need to be properly applied to each potential impact.

The **sensitivity of a receptor** is set as either **low, medium or high**.

For **ecological impacts**, sensitivity is based on the conservation importance of habitats and species.

For **socio-economic impacts**, the degree of sensitivity of a receptor is defined as the level of resilience (or capacity to cope) with sudden social and economic changes.

Table 7.1: Impacts Significance

Magnitude of Impact	Sensitivity of Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

While the above matrix provides a framework for the determination of significance and enables comparison across environmental and social parameters, a degree of professional judgement shall be used

7.1.3 Mitigation Measures and Residual Impacts

A key objective of an ESIA is to identify and define socially, environmentally and technically acceptable and cost effective measures to manage and mitigate potential impacts. Mitigation measures are implemented to avoid, reduce, remedy or compensate potential negative impacts, and to enhance potential environmental and social benefits.

The approach taken to define mitigation measures is based on a typical hierarchy of decisions and measures, as described in the table below.

The priority is to first apply mitigation measures to the source of the impact (i.e.: to avoid or reduce the magnitude of the impact from the associated Project activity), and then to address the resultant effect to the source/receptor via abatement or compensatory measures or offsets (i.e.: to reduce the significance of the effect once all reasonably practicable mitigations have been already applied to reduce the impact magnitude).

Once mitigation measures are applied, the step forward, in the impact assessment process, is to assign a residual impact significance.

In practical terms, this means to repeat the steps used above for the assessment of an impact.

Table 7.2: Hierarchy for Mitigation Measures

Avoid / reduce at source: avoiding or reducing at source through the design of the Project (e.g. avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
Abate on Site: add something to the design to abate the impact (e.g. pollution control equipment).
Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g. traffic measures)
Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. material storage areas) and these impacts require repair, restoration and reinstatement measures
Compensate in Kind/Compensate Through Other Means where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g. financial compensation for degrading agricultural land and impacting crop yields)

7.2 AIR QUALITY

Emissions during the construction and operational phases of the Dry Port Project will contribute to local air pollutant levels and thereby may impact on the health of nearby communities, workers and other sensitive receptors. The anticipated emissions for the construction and operational phases of the Project are presented below. An impact assessment according to the proposed methodology has also been provided.

7.2.1 Construction phase air Emissions

The main emission sources analyzed over the construction period are:

- ✓ Dust emissions due to land preparation and general construction activities including earthworks; and
- ✓ Exhaust emissions from the construction machinery and equipment.
- ✓ Dust emissions due to land preparation and general construction activities including earthworks; and
- ✓ Exhaust emissions from the construction machinery and equipment.

7.2.1.1 Dust Emissions due to Land Preparation

According to the information provided by VLP, the total volume of excavation is 195,600 m^3 with a volume of 38,400 m^3 being required for refilling and the residual used for the surfacing of the Access Road.

Excavated materials are temporarily stored on site near the excavation areas until they are used for backfilling.

Dust emissions are closely related to the specific source conditions, such as type of activity, nature of earth, and meteorological conditions.

However, dust emissions due to site preparation activities can be predicted using the typical emissions factors as presented in the following table (US EPA, 2016).

Table 7.3: Uncontrolled Particulate Emission Factors for Open Dust Sources

Sources	TSP Emission Factors	Unit
Topsoil removal by scraper	0.029	kg/ton
Truck loading by power shovel	0.018	kg/ton
End dump truck unloading	0.004	kg/ton

** Emission factors derived from Section 11.9, Table 11.9-4 of AP-42 (US EPA, 2016).*

Site preparation activities and corresponding dust emissions are calculated based on the following assumptions on cut and fill amounts, bulk density of soil, duration of earth works, size of the area on which activities take place, etc. The variables that were provided by the Project Company and used in estimation of dust emissions are presented in Table 7.4 and the estimated controlled and uncontrolled dust emissions are presented in Table 7.5. It is assumed that 30% of Total Suspended Particulate (TSP) emissions is due to PM_{10}. Under controlled conditions it is assumed that 50% of emission reduction can be achieved by taking measures such as dust suppression.

TSP Generation was calculated by using below formula for uncontrolled condition:

$$TSP\ Emission\ \left(\frac{kg}{hr}\right) = \left(Soil\ Mass\ \ (kg) X\ Emission\ Factor\left(\frac{kg}{ton}\right)\right) \div\ Construction\ Duration(hr)$$

Table 7.4: Parameters used in Estimation of Dust Emissions

Excavation	Excavation amount	195,600	m^3
	Construction Duration	18	months
	Excavation amount per day	652	m^3/day
	Bulk density of sandy soil	1.60	ton/m^3
	Mass of excavated soil	312,960	ton
	Area of concern	55	ha
Fill	Fill amount	138,400	m^3
	Mass of soil to be filled	221,440	ton
	Daily amount of fill	308	m^3/day

Table 7.5: Estimated Dust Emissions due to Cut and Fill Works

Activity	Uncontrolled TSP Emission (kg/hr)	Uncontrolled PM10 Emission (kg/hr)	Controlled TSP Emission (kg/hr)	Controlled PM10 Emission (kg/hr)	Total PM Flux (Uncontrolled) ($g/m^2.sec$)	Total PM Flux (Controlled) ($g/m^2.sec$)
Topsoil removal by scraper	840.36	252.11	420.18	126.05	9.2×10^{-3}	0.005
Truck loading by power shovel	521.60	156.48	260.80	78.24	5.7×10^{-3}	0.003
End dump truck unloading	120.00	36.00	60.00	18.00	1.3×10^{-3}	0.001

7.2.1.1.1 *Impact Assessment: Increased PM10 levels as a result of construction activities*

In the absence of baseline ambient air quality information, a quantitative assessment cannot be done in terms of scale of the impacts based on baseline conditions, so the assessment below is qualitative in nature.

The magnitude of the impact has been defined as:

Table 7.6: Magnitude for increased PM10 levels as a result of construction activities

Impact Definition Criteria	Characteristics
Type	**Direct and Indirect** Cut and fill works are assumed to be spread through the construction period and performed intermittently which is expected to prevent generation of high concentrations of PM10 during short periods. The impact is both direct and indirect as health impacts on receptors may result due to the inhalation of PM10s
Duration	**Temporary**: i.e. less than 3 years
Extent	**Local**: i.e. limited to the project site and immediate surroundings
Scale	55 ha to be developed for the project footprint. Flux under controlled conditions based on Environmental, health and safety measures described in Section 4.9.1 of the impact is anticipated to be small.
Frequency	Ongoing
Likelihood	Not applicable
Magnitude	**Medium**

Receptor sensitivity is considered as Medium with a conservative approach due to lack of baseline data.

According to Table 7.7 below the **impact significance** is considered as **Moderate**.

Table 7.7: Impact significance for increased PM10 levels as a result of construction activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.2.1.1.2 *Impact assessment: Increased nuisance dust as a result of construction activities*

In the absence of baseline ambient air quality information, a quantitative assessment cannot be done in terms of scale of the impacts on baseline conditions, so the assessment below is qualitative in nature.

The magnitude of the impact has been defined as:

Table 7.8: Magnitude for increased nuisance dust as a result of construction activities

Impact Definition Criteria	Characteristics
Type	**Direct** i.e. dust generation directly affects air quality within the immediate vicinity of the Project. It is not anticipated to result in health impacts
Duration	**Temporary**: i.e. less than 3 years
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	55 ha to be developed for the Project footprint. Flux under controlled conditions based on Environmental, health and safety measures described in Section 4.9.1 of the impact is anticipated to be small.
Frequency	Ongoing
Likelihood	Not applicable
Magnitude	**Medium**

Increased nuisance primarily affects human receptors; therefore, receptor sensitivity is assigned as **High**.

According to Table 7.9 below the **impact significance** is considered as **Major**.

Table 7.9: Impact significance for increased nuisance dust as a result of construction activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	**Major**
High	Moderate	Major	Major

7.2.1.2 Exhaust Gas Emissions from Construction Machinery and Equipment

Exhaust gas emissions from the use of construction machinery and equipment are calculated here below. Construction machinery and equipment that is planned to be used during the construction phase and associated fuel consumption are listed in Table 7.10 . The calculation made on exhaust emissions is based on the assumptions as follows:

- ✓ Diesel fuel will be used for all construction machinery and equipment;
- ✓ All machinery and equipment will operate at the same time but not in the same position and that they will be scattered at different locations within the license area;
- ✓ Fuel consumption is taken as 225 g fuel/kWh;
- ✓ The construction works will take 8 hours a day and 25 days a month;
- ✓ All machinery and equipment will comply with Stage V emissions[22].

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[22] Machinery complying with the European Commission's proposed 'Stage V' emission limits.

Table 7.10: Details on Planned Construction Machinery and Equipment and Corresponding Fuel Consumption

Machinery / Equipment	Capacity/Model	Maximum Number	Engine Power (kW)	Fuel Consumption (g fuel / kWh)
Excavator	1.0m^3	4	113	225
Excavator	1.6m^3	3	190	225
Loader	3.0m^3	2	78	225
Grader	SHG190	1	134	225
Bulldozer	220HP	2	149	225
Tire belt machine	TB110	2	265	225
Vibrator	20T	3	4.1	225
Hand-hold vibrator	BW75H	9	6.5	225
Concrete tank truck	8m³	10	45	225
batching plant	HZS120	1	37	225
generator	500KW	1	500	225
generator	250KW	1	250	225
generator	50KW	6	50	225
Flat-Bed Truck	15T	5	235	225
truck with crane	12T	3	110	225
Dumper	25T	9	194	225
Oil Tank Truck	10T	1	216	225
Water Truck	10T	2	216	225
truck crane	130T	2	162	225
truck crane	80T	1	275	225
truck crane	50T	1	123	225
truck crane	25T	1	199	225
Concrete Mixer	0.1m^3	5	2.2	225
Air Compressor	NA	4	37	225
Rebar-Bender	NA	8	3	225
Rebar-Cutter	NA	6	3	225
Ambulance	85kW	1	85	225
Off-Road Vehicle	Toyota	6	370	225
Pick Up Car	Toyota	15	370	225

The European Monitoring and Evaluation Programme / European Environment Agency (EMEP/EEA) Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Non-road mobile sources and machinery were adopted for the calculation of NO_x, CO, PM_{10} and SO_2 emissions. Tier 2 emission factors (EFs) presented in Table 7.11 below have been used for calculations:

Table 7.11: Tier 2 Emission Factors for Diesel Construction Equipment

	NOx	CO	PM10
Emission Factors (g/ton fuel)	7,663	7,352	116

Source: EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Non-road mobile sources and machinery, Table 3-2.

The generic algorithm for calculating emissions using the Tier 2 approach is:

$$E_i = \sum FC \times EF_i$$

where:

Ei = mass of emissions of pollutant i [g/sec],

FC= fuel consomption [ton fuel/sec],

EFi = average emission factor for pollutant i [g/ton fuel],

i = pollutant type.

Fuel consumption (FC) above is calculated as follows:

$$FC\left[\frac{\text{ton fuel}}{\text{sec}}\right] = \text{Engine Power}\ [\text{kW}] \times FC\left[\frac{\text{g fuel}}{\text{kWh}}\right] \times \frac{1\ \text{ton}}{10^6 g} \times \frac{1h}{3600 sec}$$

Calculated fuel consumption based on information in Table 7.10 and above equation is **0.001 ton fuel/sec.**

SO_2 emissions are estimated by assuming that all sulphur in the fuel is transformed completely into SO_2 using the formula given below:

$$E_{SO2} = 2 \sum k_S \times FC$$

where:

kS = weight related sulphur content of fuel [kg/kg] (taken as 400 ppm),

FC = fuel consumption [kg].

Calculated emissions of NOx, CO, PM and SO_2 (assuming that all construction machinery is operational at the same time) are presented in Table 7.12 below.

Table 7.12: Estimated Exhaust Emissions from Construction Machinery and Equipment

Parameters	Estimated Emission Rates (g/sec)	Estimated Emission Rates (kg/year) (calculated for 8 hrs of operation 300 days of the year)
NO_x (as NO_2)	7.96 (1.6 as NO_2)	68,790 (13,758 as NO_2)
CO	7.64	65,998
PM_{10}	0.12	1,041
SO_2	0.83	7,181

Exhaust Emissions from Road Transportation were also calculated based on Tier 2 exhaust emission factors for heavy-duty vehicles as presented in below. For this calculation all heavy vehicles and trucks were taken into account. Therefore, number of heavy-duty vehicles was determined as 64 and used for this calculation.

Table 7.13. Calculations were based on a worst-case assumption that maximum estimated number of heavy-duty vehicles will operate at the same time with 60 km/hr speed. Calculated emissions due to road transport are provided in Table 7.14 below. For this calculation all heavy vehicles and trucks were taken into account. Therefore, number of heavy-duty vehicles was determined as 64 and used for this calculation.

Table 7.13: Tier 2 Emission Factors for Diesel heavy-duty vehicles

	NOx	CO	PM
Emission Factors (g/veh.km)	0.012	0.121	0.0013

Source: EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Non-road mobile sources and machinery, Table 3-2.

Table 7.14: Estimated Exhaust Emissions from Road Transportation

Parameters	Estimated Emission Rates (g/sec)	Estimated Emission Rates (kg/yr)
NO_x (as NO_2)	0.0128 (0.0026 as NO_2)	111 (22 as NO_2)
CO	0.13	1115
PM	0.0014	12
SO_2	0.25	2,138

7.2.1.3 Impact assessment: Increased vehicle and equipment emissions as a result of construction activities in the Project area

In the absence of baseline ambient air quality information, a quantitative assessment cannot be done in terms of scale of the impacts on baseline conditions, so the assessment below is qualitative in nature.

The magnitude of the impact has been defined as:

Table 7.15: Magnitude for increased vehicle and equipment emissions as a result of construction activities

Impact Definition Criteria	Characteristics
Type	Direct The most critical phase occurs, when several concurrent activities on site will involve a higher number of different heavy equipment for construction and earth moving.
Duration	Temporary i.e. less than 3 years
Extent	**On-site**: i.e. Impacts are limited to the Project Site
Scale	Movements of construction vehicle and equipment will be scattered within the 55 ha Project Impacts to be scattered across the site according to vehicle location. Based on Environmental, health and safety measures described in Section 4.9.1, scale of the impact is anticipated to be small.
Frequency	Ongoing
Likelihood	Not applicable
Magnitude	**Low**

Receptor sensitivity is considered as High with a conservative approach due to lack of baseline data.

According to Table 7.16 below above the **impact significance** is considered as **Moderate**.

Table 7.16: Impact significance for increased vehicle emissions as a result of construction activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major x
High	Moderate	Major	Major

7.2.2 Operation Phase Air Emissions

The main emission sources of the operation will be due to machinery and equipment that will be operated during operation activities and vehicles that enter and exit the Project Site on daily basis.

7.2.2.1 Exhaust Gas Emissions from Operation Phase Machinery and Equipment

Exhaust gas emissions from operation of machinery and equipment are calculated in this section. Machinery and equipment that is planned to be used during the construction phase and associated fuel consumption are listed in Table 7.17. The calculation of exhaust emissions is based on the following assumptions:

- ✓ Diesel fuel will be used for all operational machinery and equipment;
- ✓ All machinery and equipment will operate at the same time but not in the same position and that they will be scattered at different locations within the license area;
- ✓ Fuel consumption is taken as 225 g fuel/kWh;
- ✓ The port will operate for eight hours a day and 25 days a month;
- ✓ All machinery and equipment will comply with Stage V emissions[23].

Table 7.17: Details on Planned Operation Machinery and Equipment and Corresponding Fuel Consumption

Machinery / Equipment	Capacity	Maximum Number	Engine Power (kW)	Fuel Consumption (g fuel / kWh)
Reachstacker	40-45t	5	256	225
Terminal Tracktor		6	131	225
Forklift	3t	4	35.5	225
Forklift	5t	4	62.5	225
Truck	10T	3	216	225
Pick Up Car		150	370	225
Ambulance		10	85	225

As the machinery and equipment that will be used for Port operations are similar to construction machinery and equipment, EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Non-road mobile sources and machinery was adopted for the calculation of NO_x, CO, PM and SO_2 emissions. Tier 2 emission factors (EFs) presented in Table 7.18 below have been used for calculations:

Table 7.18: Tier 2 Emission Factors for Diesel Construction Equipment

	NOx	CO	PM
Emission Factors (g/ton fuel)	7,663	7,352	116

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[23] Machinery complying with the European Commission's proposed 'Stage V' emission limits.

Source: EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Non-road mobile sources and machinery, Table 3-2.

The generic algorithm for calculating emissions using the Tier 2 approach is:

$$E_i = \sum FC \times EF_i$$

where:

Ei = mass of emissions of pollutant i [g/sec],

FC= fuel consomption [ton fuel/sec],

EFi = average emission factor for pollutant i [g/ton fuel],

i = pollutant type.

Fuel consumption (FC) above is calculated as follows:

$$FC\left[\frac{\text{ton fuel}}{\text{sec}}\right] = \text{Engine Power}\ [\text{kW}] \times FC\left[\frac{\text{g fuel}}{\text{kWh}}\right] \times \frac{1\ \text{ton}}{10^6 g} \times \frac{1h}{3600 sec}$$

Calculated fuel consumption based on information in Table 7.18 and above equation is **0.0004 ton fuel/sec.**

SO_2 emissions are estimated by assuming that all sulphur in the fuel is transformed completely into SO_2 using the formula given below:

$$E_{SO2} = 2 \sum k_S \times FC$$

where:

kS = weight related sulphur content of fuel [kg/kg] (taken as 400 ppm),

FC = fuel consumption [kg].

Calculated emissions of NOx, CO, PM and SO_2 (assuming that all construction machinery is operational at the same time) are presented in Table 7.19 below.

Table 7.19: Estimated Exhaust Emissions from Construction Machinery and Equipment

Parameters	Estimated Emission Rates (g/sec)	Estimated Emission Rates (kg/yr)
NO_x (as NO_2)	3.67 (0.73 as NO_2)	31,681 (6,336 as NO_2)
CO	3.52	30,395
PM	0.06	480
SO_2	0.38	3,307

Exhaust Emissions from Road Transportation of the vehicles that will enter the Dry Port on daily basis was also calculated based on Tier 2 exhaust emission factors for light vehicles and heavy-duty vehicles as specified in EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) 1.A.3.b.i, 1.A.3.b.ii, 1.A.3.b.iii, 1.A.3.b.iv: Passenger cars, light commercial trucks, heavy-duty vehicles including buses and motor cycles and presented in Table 7.20.

Calculations were based on the estimated daily vehicle entrance to the Port and based on below assumptions:

- ✓ Anticipated daily number of light vehicles that will enter the Port is 50;
- ✓ Anticipated daily number of cargo trucks that will enter the Port is 150;
- ✓ Travel distance within the Port is approximately 2.6km on one direction and each vehicle is estimated to travel 2x2.6km within the site;
- ✓ Diesel fuel will be used for all vehicles;
- ✓ The port will operate for eight hours a day and 25 days a month;

✓ All vehicles will comply with Stage V emissions[24].

Table 7.20: Tier 2 Emission Factors for Light Vehicles and Cargo trucks

	NOx	CO	PM
Emission Factors for diesel medium size light vehicles – light vehicles (g/km)	0.55	0.04	0.0021
Emission Factors for Diesel 16 – 32t capacity heavy duty vehicles – cargo trucks (g/km)	3.83	0.105	0.0239

Source: EMEP/EEA Air Pollutant Emission Inventory Guidebook (2016) Tier 2 Emission Factors for Passenger cars, light commercial trucks, heavy-duty vehicles including.

Calculated emissions due to movement of vehicles are provided in Table 7.21 below. Tier 2 emissions standards established by Congress apply to commercial compression-ignition (diesel) engines with a power rating of at least 37 kW. Therefore, number of heavy-duty vehicles was determined as 64 and used for this calculation.

Table 7.21: Estimated Exhaust Emissions from the Movement of Light Vehicles and Cargo trucks

Parameters	Estimated Emission Rates (g/day)	Estimated Emission Rates (kg/yr)
NO_x (as NO_2)	3,130 (0.0026 as NO_2)	1,142
CO	92.3	33.69
PM	19.19	7.00
SO_2	58.95	21.52

7.2.2.2 Impact Assessment: Increased vehicle and equipment emissions as a result of operation activities in the Project area

With a conservative approach, above calculations were based on the assumption that all listed equipment (except for vehicles that will daily visit the Port) will continuously operate in parallel during working hours. As such, the exhaust emissions will be effective for long term and mostly effective within the boundaries of the Port, adjacent properties and communities along the access route (extent of the impact is local). The potentially induced impact on air quality due to exhaust emissions is evaluated to be local, direct and long term in nature. In the absence of baseline data, impact magnitude is considered as medium while its significance is moderate based on Medium to High receptor sensitivity.

The magnitude of the impact has been defined as:

****

[24] Machinery complying with the European Commission's proposed 'Stage V' emission limits.

Table 7.22: Magnitude for increased vehicle and equipment emissions as a result of operation activities

Impact Definition Criteria	Characteristics
Type	Direct The most critical phase occurs when a higher number of vehicles is operating on site.
Duration	Long Term i.e. higher than 5 years
Extent	**Local**: i.e. Impacts that are limited to the Project site and adjacent properties
Scale	Movements of operation phase equipment and vehicles will be scattered within the Port. Movement of cargo trucks will concentrate on the access routes within the Port. Based on Environmental, health and safety measures described in Section 4.9.1, the scale of the impact is anticipated to be small.
Frequency	Ongoing
Likelihood	Not applicable
Magnitude	**Medium**

Receptor sensitivity is considered as High due to lack of baseline data.

According to Table 7.23 below the **impact significance** is considered as **Major**.

Table 7.23: Impact significance for increased vehicle emissions as a result of operational activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	**Major**
High	Moderate	Major	Major

7.2.3 Mitigation and Engagement Measures

With regard to the aspects being considered for the S-ESIA, it is understood that there will be some built-in mitigation provided that needs to be considered in the assessment of the Project. These mitigations measures were identified in the existing ESMMP and have been provided for construction phase:

- ✓ dust suppression in areas of construction works 2 times/day (in the morning and evening) or more than twice if excessive dust is noted;
- ✓ Cover all materials that are transported via vehicles on to the site;
- ✓ No unloading of construction materials in high wind conditions;
- ✓ Wherever possible, the construction activities need to be placed away from sensitive receptors;
- ✓ No machinery should be turned on unless under operation;
- ✓ Maintain construction equipment on a regular basis;
- ✓ No burning of solid waste allowed;

- ✓ Speed limits on site to be restricted to 30 km/hour;
- ✓ Adherence to regulations and Law on Construction No.05/NA Dated 2009.

In addition, the following mitigations are recommended to be taken during the operation phase:

- ✓ No machinery to be turned on unless under operation. Encourage reduced engine idling during on- and off-loading activities;
- ✓ Maintain operation equipment on a regular basis;
- ✓ Speed limits within the Port to be restricted to 30 km/hour and speed limits along the access routes to be obeyed;
- ✓ Require use of low-sulphur fuels in port, if feasible, or as required by international regulations;
- ✓ Where practicable, upgrade vehicle and equipment fleets with low emission vehicles;
- ✓ Maintain cargo transfer equipment (e.g., cranes, forklifts, and trucks) in good working condition to reduce air emissions;
- ✓ A maintenance schedule for all site equipment releasing emissions will need to be developed and implemented.

It is anticipated that an air quality monitoring programme will be developed and implemented for the operational phase of the Project.

7.2.4 Residual Impacts

The following summaries the pre-and post mitigation (residual) assessment of impacts:

Impact Assessment Rating Pre-Mitigation	Residual Impact
Construction – Increased PM10 levels (Moderate)	Construction – Increased PM10 levels (Minor)
Construction – Increased nuisance dust (Major)	Construction – Increased nuisance dust (Moderate)
Construction – Increased vehicle emissions (Moderate)	Construction – Increased vehicle emissions (Minor)
Operation – Increased vehicle emissions (Major)	Operation – Increased vehicle emissions (Moderate)

7.3 SURFACE WATER AND GROUNDWATER QUALITY

7.3.1 Construction Phase Surface Water and Groundwater Impacts

The main potential impacts on the surficial water and the groundwater analyzed over the construction period are:

- ✓ Contamination of surface and groundwater bodies as a result of contaminated runoff and the release of untreated waste water;
- ✓ Contamination of surface and groundwater bodies as a result of poor waste management practises on site.

7.3.1.1 Contamination Resulting from Contaminated Runoff and Release of Untreated Wastewater

Wastewater generated by the Project during the construction phase derives from two sources: a) storm water runoff and b) domestic wastewater generated by the toilets and other areas of the accommodation camps serving the workers camps and collected in septic tanks. _Waste waters from septic tanks are periodically (weekly) collected by a waste contractor and disposed of (disposal site not determined). Thus the only wastewater runoff from the site that may lead to contamination of the surface and groundwater in the project area is the stormwater runoff.

On the site there are no facilities for the separation or containment of contaminated versus clean runoff and all stormwater is discharged via temporary ditches into the natural environment. As a result, potential contaminants and spills deriving from the construction activities will, during rain events be washed into the surrounding

environment, impacting on soils, surface water and groundwater bodies. Given that pollution control on site is very poor, it is anticipated that this impact will be realised.

Table 7.24: Magnitude of Contamination from Runoff and Wastewater Discharge

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Temporary
Extent	On-site/Local
Scale	Depending on the potential pollution
Frequency	Ongoing - duration of construction activities
Likelihood	Likely
Magnitude	**Medium**

Surface and groundwater use in the project area has not been defined, although it is known that the surface water bodies are not relied on as a source of potable water. Agricultural activities surround the project site particularly on the eastern side. No specific data was available on the stormwater runoff volumes during the construction phase and consequently on the potential dilution of contaminants The majority of the drainage from the site is towards the Mekong River located approximately 2 km downstream of the Project site. Water uses supported by the Mekong River have not been ascertained. As a result, as a conservative estimation of sensitivity, the sensitivity of the impact has been ranked to be **Medium.**

According to Table 7.35 below the **impact significance** is considered as **Moderate**.

Table 7.25: Impact significance for Contamination from Runoff and Wastewater Discharge

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.3.1.2 Contamination resulting from poor waste management

During the construction phase waste is proposed for storage in designated areas and collected and disposed of by the waste contractor on regular basis. Waste storage areas are not protected from the elements and are unsurfaced. Hazardous wastes (such as exhausted oil) are stored in a dedicated area, but with inadequate pollution control.

Potential pollution deriving from poor waste management can have a resultant contamination impact on storm water runoff affected surface and groundwater bodies as detailed above.

Table 7.26: Magnitude of Contamination from Poor Waste Management

Impact Definition Criteria	Characteristics
Type	Direct

Impact Definition Criteria	Characteristics
Duration	Temporary
Extent	On-site/Local
Scale	Depending on the potential pollution
Frequency	Ongoing - duration of construction activities
Likelihood	Likely
Magnitude	**Medium**

Surface and groundwater use in the project area has not been defined, although it is known that the surface water bodies are not relied on as a source of potable water. Agricultural activities surround the project site particularly on the eastern side. No specific data was available on the stormwater runoff volumes during the construction phase and consequently on the potential dilution of contaminants The majority of the drainage from the site is towards the Mekong River located approximately 2 km downstream of the Project site. Water uses supported by the Mekong River have not been ascertained. As a result, as a conservative estimation of sensitivity, the sensitivity of the impact has been ranked to be **Medium.**

According to Table 7.35 below the **impact significance** is considered as **Moderate**.

Table 7.27: Impact Significance for Poor Waste Management

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.3.2 Operation Phase Surface Water and Groundwater Impacts

The main potential impacts on the surface water and the groundwater analyzed over the operation period are:

- ✓ Contamination of surface and groundwater bodies as a result of contaminated runoff deriving from spills of hazardous substances and the release of untreated waste water;
- ✓ Contamination of surface and groundwater bodies as a result of poor waste management (including hazardous substances) practises on site.

7.3.2.1 Contamination resulting from contaminated runoff and release of untreated wastewater

During the operational phase, all wastewater is directed to the retention pond (3,500 m^3) which is to be periodically, when at full capacity, released into the surface water channel located on the western side of the Dry Port area.

Wastewaters feeding into the retention pond include waters from the septic tanks (from ablutions and canteens) and storm water runoff from the paved areas where potential spills of hazardous substances can occurs. No other dirty area containment measures have been detailed in the project description provided for this assessment.

It is understood that the water from the retention pond will be tested to meet the required environmental standard prior to release. The frequency and volume of wastewater release from the retention pond is unknown.

Table 7.28: Magnitude of Contamination from Runoff and Wastewater Discharge

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Long Term
Extent	On-site/Local
Scale	Depending on frequency and volume of wastewater discharge
Frequency	Frequency of release is unknown – During the Operation phase
Likelihood	Possible
Magnitude	**Medium**

Surface and groundwater use in the project area has not been defined, although it is known that the surface water bodies are not relied on as a source of potable water. Agricultural activities surround the project site particularly on the eastern side. No specific data was available on the stormwater runoff volumes during the construction phase and consequently on the potential dilution of contaminants The majority of the drainage from the site is towards the Mekong River located approximately 2 km downstream of the Project site. Water uses supported by the Mekong River have not been ascertained. As a result, as a conservative estimation of sensitivity, the sensitivity of the impact has been ranked to be **Medium.**

According to Table 7.29 below the **impact significance** is considered as **Moderate**.

Table 7.29: Impact significance for Contamination from Runoff and Wastewater Discharge

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.3.2.2 Contamination resulting from poor waste management

Potential contamination arising from the waste storage areas will be collected inthe drainage system, ultimately releasing into the retention pond during storm events.

During the operational phase the wastes produced by the Project activities will be collected and stored in a dedicated facility (Waste Storage Facility) with concrete paving. Currently is not planned a specific storage site with containment measures for hazardous waste (such as exhausted oil).

The retention pond will periodically, when at full capacity, release water into the surface water channel located on the western side of the Dry Port area. It is understood that the water from the retention pond will be tested to meet the required environmental standard prior to release. The frequency and volume of wastewater release from the retention pond is unknown.

Table 7.30: Magnitude of Contamination from Poor Waste Management

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Long Term
Extent	On-site/Local
Scale	Depending on frequency and volume of wastewater discharge
Frequency	Frequency of release is unknown – During the Operation phase
Likelihood	Possible
Magnitude	**Medium**

Surface and groundwater use in the project area has not been defined, although it is known that the surface water bodies are not relied on as a source of potable water. Agricultural activities surround the project site particularly on the eastern side. No specific data was available on the stormwater runoff volumes during the construction phase and consequently on the potential dilution of contaminants The majority of the drainage from the site is towards the Mekong River located approximately 2 km downstream of the Project site. Water uses supported by the Mekong River have not been ascertained. As a result, as a conservative estimation of sensitivity, the sensitivity of the impact has been ranked to be **Medium.**

According to Table 7.35 below the **impact significance** is considered as **Moderate**.

Table 7.31: Impact Significance for **Poor Waste Management**

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.3.3 Mitigation and Engagement Measures

With regard to the aspects being considered for the S-ESIA, it is understood that there will be some built-in mitigation provided that needs to be considered in the assessment of the Project. These mitigations measures were identified in the existing ESMMP and have been provided for construction phase:

- ✓ Potentially contaminated runoff from the site needs to be collected rather than discharged into the environment. Appropriate measures such as sediment ponds, oil traps and stormwater dams should be employed;
- ✓ Spill response kits should be available in the project area to minimize the consequences of accidental release of oil or hazardous substances. In this regard a Spill Prevention and Response Plan should be prepared;
- ✓ Waste storage areas need to be appropriately surfaced and runoff from these areas contained;
- ✓ Hazardous waste and substances should be stored in dedicated secure facilities provided of secondary containment measures.

In addition, the following mitigations are recommended to be taken during the operation phase:

- ✓ Verification, through an hydrogeologic study, of the adequacy of the volume of retention pond for the collection of stormwater and other waste waters during storm events and adoption of measures to control excess water releases from the site;

- ✓ The retention pond should be cleared of sediment on a regular basis and prior to the commencement of the rainy season. The frequency of this to be advised by the hydrologist;
- ✓ Appropriate measures for the storage and management of potentially hazardous materials (hydrocarbons, solvents, lubricants, and any other used during operational phase) such as impermeable pavement, secondary containment, storm water and runoff catchment, spillage traps, bunds, sheds or site-specific combinations of such preventive measures need to be defined through specialist expertise;
- ✓ Standard pollution control measures should be implemented to minimise pollution incidents. Spill kits will be provided on site and all fuel and other potential pollutants should be stored in appropriate containers;
- ✓ Drip trays must be provided in workshop and garage areas. For all activities that could result in an oil spill, drip trays are to be utilised;
- ✓ Use leak proof containers for the storage and transportation of hazardous materials (including oil/grease) and install a proper drainage and treatment system for collecting and treating the wash off from the hazardous materials handling area;
- ✓ Wastewater from bathrooms, canteens, motels, shops and offices will drain into the septic tank system. The overflow from this system will then be transferred via underground pipes to the retention pond;
- ✓ When septic tanks are full a licensed waste contractor will be provided to pump out the sludge from the septic tanks and transport this to a licensed waste disposal facility;
- ✓ Continuously evaluate opportunities for reductions in wastewater discharges throughout the project lifetime;
- ✓ All waste water discharges from the site will be tested in terms of water quality in line with the Wastewater Management Plan;
- ✓ A water quality sampling protocol will be developed and implemented prior to all releases from the site;
- ✓ Training will be provided on water sampling to the responsible party;
- ✓ No releases from the site will be permitted if the E&S standards are exceeded. VLP will immediately notify the relevant authorities of any non conformances in this regard providing a record of the incident involved;
- ✓ Adequate waste storage facilities will be provided according to waste types. For hazardous wastes, a specific area inside the waste storage facility or in another location should be planned and appropriately bunded, secured and covered to protect against the elements. Hazardous waste storage areas should be located away from drainage lines;
- ✓ An adequate number of waste storage containers will be provided for each general waste stream at all of the waste generation areas on the site;
- ✓ A waste collection schedule is to be developed, dependent on the anticipated volumes to be generated and the capacity of storage facilities on site. The licensed waste contractor will be appointed to meet this schedule for waste removal;
- ✓ A Stormwater Management Plan, Pollution Prevention and Control Management Plan and Spill Prevention and Response Plan needs to be compiled for this purpose.

7.3.4 Residual Impacts

The following summaries the pre-and post mitigation (residual) assessment of impacts:

Impact Assessment Rating Pre-Mitigation	Residual Impact
Construction – Contamination resulting from contaminated runoff and release of untreated wastewater (Moderate)	Construction – Contamination resulting from contaminated runoff and release of untreated wastewater (Minor)
Construction – Contamination resulting from poor waste management (Moderate)	Construction – Contamination resulting from poor waste management (Minor)
Operation – Contamination resulting from contaminated runoff and release of untreated wastewater (Moderate)	Operation – Contamination resulting from contaminated runoff and release of untreated wastewater (Minor)

Impact Assessment Rating Pre-Mitigation	Residual Impact
Operation – Contamination resulting from poor waste management (Moderate)	Operation – Contamination resulting from poor waste management (Minor)

7.4 BIODIVERSITY

7.4.1 Construction Phase Biodiversity Impacts

7.4.1.1 Loss of habitat

The majority of terrestrial habitats were removed from the site prior to the construction phase of the Project. It is likely that only a small area (0.9ha) of habitat remained on the site in early 2021, however at the time of the site survey in October 2021 this had all been removed. As a result of long-term degradation of habitats within the vicinity of the Dry Port it is likely that all remaining areas of habitat were degraded and have limited ecological function as a result of fragmentation and use for agriculture and subsistence farming.

The magnitude of any construction related impact is Medium.

Table 7.32: Magnitude for loss of habitat as a result of construction activities

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Permanent
Extent	On-site
Scale	Only 0.9ha remaining at the time of the Dry Port development
Frequency	Ongoing - duration of site clearance operations
Likelihood	Not applicable
Magnitude	**Medium**

Impacts to terrestrial ecological receptors are difficult to quantify as no site-specific survey information is available, however based on the site survey completed in 2021 which included interviews with local communities it is likely the site only supported common and widespread species which would be valued as being of low sensitivity. We have applied a level of precautionary measure given the lack of site detail and ranked the sensitivity to be **Medium**.

As a result, the impact significance is considered as **Moderate** (see Table 7.33)**.** These impacts are, however are long-term and irreversible.

Table 7.33: Impact significance for loss of habitat as a result of construction activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.4.1.2 Loss of ecosystem services

Ecosystem services relating to provisioning and regulatory services supported by site-wide habitats have been permanently lost. Ecosystem services provided by the site pre-construction were primarily related to subsistence farming activities, given the limited extent of the habitat identified on site prior to the commencement of construction activities. Regulatory systems are unlikely to be significant as the habitat area is small and it and the wider area is under massive pressure from rapid urbanisation / development

Table 7.34: Magnitude of a Loss of Ecosystem Services

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Permanent
Extent	On-site
Scale	Only 0.9ha remaining at the time of the Dry Port development
Frequency	Ongoing - duration of site clearance operations
Likelihood	Not applicable
Magnitude	**Low**

It is likely the site only supported common and widespread species which would be valued as being of low sensitivity and ecosystem services provided by the site were largely related to agricultural activities. We have applied a level of precautionary measure given the lack of site detail and ranked the sensitivity to be Medium.

According to Table 7.35 below above the **impact significance** is considered as **Minor**.

Table 7.35: Impact significance for a loss of ecosystem services

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	**Minor**	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

7.4.2 Operational Phase Biodiversity Impacts

Operational phase impacts are limited to direct and indirect impacts on areas of adjacent habitat and the species they support. Direct impacts could include collection of firewood or hunting and animal collection from areas of adjacent habitat, project creep into these areas and operational impacts including increased pollution, noise, light and dust and are likely to be of low magnitude.

Table 7.36: Magnitude of Operational Related Impacts on Ecological Receptors

Impact Definition Criteria	Characteristics
Type	Direct and Indirect Project creep into areas of adjacent habitat Hunting / animal collection from areas of adjacent habitat Collection of firewood from areas of adjacent habitat Increased pollution, light, noise and dust on areas of habitat adjacent to the Dry Port
Duration	Permanent
Extent	Areas of adjacent habitats
Scale	Habitats within 500m of the Dry Port site
Frequency	Daily during operation of the facility. Impacts of dust likely to be greater during dry periods and impacts of pollution likely to be greater during wet seasons with expected increases in surface water run off
Likelihood	Not applicable
Magnitude	**Low**

Impacts to terrestrial ecological receptors are difficult to quantify as no site-specific survey information is available, however based on the site survey completed in 2021 which included interviews with local communities it is likely the site only supported common and widespread species which would be valued as being of low sensitivity. We have applied a level of precautionary measure given the lack of site detail and ranked the sensitivity to be Medium.

According to Table 7.37 below above the **impact significance** is considered as **Minor**.

Table 7.37: Impact significance for loss of habitat as a result of operational activities

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	**Minor**	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

All terrestrial habitats have been lost from the site and as such it will no longer perform any ecosystem services.

7.4.3 Mitigation and Enhancement Measures

No mitigations for habitat clearance works as a result of the construction of the Dry Port were completed so it is likely that some terrestrial ecological receptors were impacted to some extent during these works. Impacts would include loss of habitat and killing and injury to reptiles, breeding birds and possibly mammals. Any terrestrial receptors within remaining areas of habitat that were cleared as part of the Dry Port project are likely to be of low sensitivity due to their conservation status and therefore any unmitigated impact on these receptors is likely to have been of low to moderate significance. Retrospective mitigation is not possible as the site has been completely cleared of all habitats however going forward for the remaining part of construction as well as during the operation of the Project the following mitigation works shall be implemented:

- ✓ Environmental awareness training for all site workers (existing and new) which should seek to explain the potential ecological value of areas of habitat outside of the Dry Port project and workers should be reminded of their responsibility to the environment and measures in place to safeguard it;
- ✓ A ban on hunting or animal collection in areas of habitat outside of the Dry Port during construction and operation of the facility.
- ✓ A ban on the collection of firewood as well as other timber and non-timber products from areas of habitat outside of the Dry Port during construction and operation of the facility;
- ✓ All working areas should be clearly demarked and encroachment into areas of habitat outside of the Project area should be prevented;
- ✓ Site wide speed limits should be enforced and if necessary, dust suppression techniques should be implemented to prevent indirect impacts of dust on habitat areas outside of the Project site;
- ✓ Measures should be put in place regarding the removal of any animal found within the working areas during construction as well as during the operation of the facility. If any snakes are observed, they should be captured by trained personnel and removed away from the site. They should be released into areas of habitat adjacent to the Dry Port, probably in areas of remaining habitat to the north-east;
- ✓ Standard pollution control measures should be implemented to ensure no pollution incidents. Spill kits should be available on site and all fuel and other potential pollutants should be stored in appropriate containers. Dedicated re-fueling areas should be clearly demarked;
- ✓ Good housekeeping should be maintained for the lifetime of the Project with all waste materials disposed of in an appropriate manner to prevent pest-species (e.g., rats / mice) from occurring on the site. These species could also present foraging opportunities for reptiles. If pest species control is required any method of control needs to ensure that it will not result in direct / indirect impacts on other species (e.g. use of targeted trapping, no poison to be used).

The above measures will ensure that the Project does not result in direct or indirect impacts on areas of adjacent habitat and or the species they support during the remaining part of construction as well as during the operation of the facility. It is therefore likely that any impact would be of a low magnitude on terrestrial ecological receptors of low sensitivity. If implemented the likely ecological impact would be of low to negligible significance.

On completion of the construction phase a programme of site wide habitat reinstatement or rehabilitation should be undertaken. Areas of the site that have not been subject to development should be allowed to revegetate and site-wide tree planting should be undertaken, especially along the site's northern, eastern and western boundaries. Planted areas would link into areas of remaining habitat, providing corridors for animals to move along. These corridors should remain unlit and any site-wide lighting should be directed in to the site and deflectors should be used to minimize light-spill on to areas of adjacent habitat.

Similar mitigations should be implemented during the decommissioning phase of the Project to ensure no direct or indirect impacts on areas of adjacent habitat or habitat features reinstated after the construction phase. A habitat / site-wide restoration plan should be developed prior to the decommissioning phase with a view to create an area of forest habitat, although given the likely rate urbanisation in the vicinity of the Dry Port, it may be more beneficial to local peoples and any remaining wildlife to create an urban park with some trees, grasslands and scattered waterbodies. Any forest habitat created as part of the decommissioning works would likely be an island habitat and of limited ecological value and function.

7.4.4 Residual Impacts

The residual impacts of the construction phase of the Project are of low significance on areas of degraded and modified habitat. Mitigations were not completed during the construction phase so these impacts and long-term and irreversible.

Residual impacts during the operation phase of the Project will be neutral at best. The is limited opportunity for habitat reinstatement / establishment within the Dry Port site. Recommended mitigation will however ensure no long-term direct or indirect impacts on areas of adjacent habitat.

The following summaries the pre-and post mitigation (residual) assessment of impacts:

Impact Assessment Rating Pre-Mitigation	Residual Impact
Construction – Impact on habitats (Moderate)	Construction – Impact on habitats (Moderate)
Operation – Impact on ecological receptors (Minor)	Operation – Impact on ecological receptors (negligible)

7.5 SOCIAL

7.5.1 Construction Phase Impacts

7.5.1.1 Land Acquisition and Resettlement

As further detailed in the Land Review study, physical and economic displacement impacts have affected at least 32 PAPs and 14 at the dry port and access road respectively, for a total of 46. For 34 of the 46 PAPs, we have been able to confirm through direct interviews 19 PAPs who experienced economic displacement (among which one had partial impact on their land parcel), 13 cases of physical displacement (among which one had partial impact on their dwelling), and 2 cases of both physical and economic displacement, among which one had partial economic displacement. The economic displacement impact includes cases of land use for crops and fruit trees, for both commercial and subsistence use.

The resettlement process within the Dry Port's 55ha area took place prior to the transfer of the concession to the Project. As a result, since 2014, other parties including the Lao-Thai railway project also encompassing the Container Yard (CY) project have taken part in the land acquisition process through the government-led resettlement committee. As part of this process, the CY project undertook the asset inventory survey of the PAPs in March 2015, following which the Lao Thai Railway project made the compensation payments through the annual government budget allocated for this purpose, up until the transfer of the concession.

The government-led Resettlement Committee managed the land acquisition process, with the applicable project developer responsible for the compensation payment. Following transfer of the concession to the Dry Port Project in 2020, there has been no comprehensive handover of information on the resettlement process or affected households between the two projects. No resettlement or livelihood restoration planning was conducted.

Based on consultations with affected households, impacts experienced to date include challenges in constructing or acquiring dwellings or land parcels of similar value and standard, due to compensation amounts and unit rates that are perceived to be insufficient. Several individuals stated that they are awaiting outstanding compensation payments, with others indicating that they are still awaiting the new land parcels or use certificates that were promised as part of the compensation agreement.

No physical displacement impact was identified in relation to the Project's other associated infrastructure. The transmission line required acquisition of a 36m^2 plot of unused land, which was completed through a compensation agreement signed in October 2021 between the Project Company and the landowner. Some of the households affected by the Project have also experienced displacement as a result of other developments in the area including the Lao China railway project. While an assessment of cumulative impacts is not included within the scope of this report, nevertheless it is anticipated that the multiple relocation processes by various developers that have occurred or will take place would destabilise the lives and livelihoods of the affected households.

The magnitude of the impact has been defined as shown below.

Table 7.38: Magnitude of Impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. physical and economic displacement directly affects people's homes and sources of income
Duration	**Permanent**: Loss of housing and income sources are permanent
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	At least 34 households lost access to the key socio-economic resources of land and housing to various degrees, across the 55 ha to be developed for the Project footprint and the access road footprint
Frequency	No recurrence
Likelihood	Occurred
Magnitude	**High**

The displaced people are considered to have a high level of sensitivity since the cost of relocation and inability to find housing, land parcels or sources of income of similar standards may have had a disruptive and adverse impact on their living standards.

According to Table 7.39 below the **impact significance** is considered as **Major**.

Table 7.39: Impact Significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	**Major**

7.5.1.2 Labor Management & Exploitation

Working Conditions and Terms of Employment

As of September 2021, a total of 456 workers were present at the Dry Port site as displayed in Table 7.40 below, among which 47 (10%) were women. The 129 foreign employees were identified as originating from China, Vietnam and Laos.

Table 7.40: Construction Labor Force

Employer	Permanent	Temporary / Agency	Local	Migrant / Foreign	Subtotal
VLP	23	103	120	6	**126 (21% women)**
3S Company	14	0	14	0	**14**
POP Construction	33	3	36	0	**36 (17% women)**
Synohydro Company	177	103	157	123	**280 (5% women)**
Total	**247**	**209**	**327**	**129**	**456 (10% women)**

General labor risks that workers are exposed to without adequate mitigation measures in place are listed below.

- ✓ Generally adequate legal requirements are in place at the national level regarding working conditions and terms of employment, however they are not effectively implemented and enforced at the workplace level, with the Department of Labor Management having insufficient resources and capacity to conduct workplace inspections;
- ✓ Individuals employed as day laborers through local brokers are vulnerable to exploitation and inadequate or delayed wage payments, with some workers on construction sites reported to be earning less than minimum wage;
- ✓ Undocumented migrant workers are present in Laos, with those from Vietnam and Myanmar concentrated in the logging, mining, and agricultural sectors, and migrants from China and Vietnam working in construction, plantations, casinos, and informal service industries.[25] Such individuals are vulnerable to exploitation by employers in sectors where wage and occupational safety and health violations are commonly reported.

Temporary, agency and foreign workforces are generally more vulnerable to experiencing adverse impacts of such risks due to lack of significant oversight over their working and living conditions by project developers, the short-term nature of their work, and lack of familiarity with local labor regulations. The Project's Employee Handbook establishes the terms of employment and working conditions to be provided to workers, which are generally aligned with Lao national law. An HR Manager oversees the Project Company's human resources responsibilities. However, no information has been provided on provisions to monitor the labour performance of the contractors and subcontractors present on site.

Use of child labor is prevalent in the agriculture sector, with agriculture accounting for 97% of the children aged 6 to 13 who are in employment.[26] Accordingly, use of child labor is significantly higher in remote rural areas compared to their urban counterparts, with less than 1% of children aged 6 to 13 years in the Vientiane Capital working compared to 13% in the city of Salavan located in an isolated, rural area of southern Laos. Thus, it is considered that the risk of child labor on the Project work site is considered minimal.

Worker Accommodation

As described in the Project Description section, the Project has established 3 accommodation camps for 12 employees of the CS Lighting Electronics contractor in the Office Building Zone, 6 camps for 14 workers of POP Construction in the Warehouse Zone, and 4 camps for 520 Sinohydro workers throughout the Office Building, Warehouse and Container Yard Zones for the construction phase. These camps are provisioned with dormitory buildings and toilet facilities.

Without sufficient mitigation measures in place, the use of worker accommodation on site for nearly 600 individuals in total presents the following general risks:

- ✓ Inadequate living conditions, such as scarce area per person, insufficient number of shower cabins, and unavailability of leisure opportunities;
- ✓ Substandard health and safety provisions at the accommodation facilities, including ventilation and air-conditioner in the room, social distancing where feasible, laundry facilities, canteen, sanitation facilities and equipment and fire extinguishers;
- ✓ Restrictions on freedom of movement in case of Covid-19 outbreaks.

On the Project site, contractual obligations in place require all contractors to provide accommodation with sufficient electricity, water, sanitary, cooking and storage facilities provided, in addition to fire extinguishers and fans for temperature control. The minimum space allocated per person is 2.5 square metre, with a total of 120 litres of safe water supplied per day. As there is no standardised, systematic procedure in place to monitor the health and safety conditions of the contractor camps, risks associated with the contractors' ongoing compliance with the H&S requirements have not been verified.

The magnitude of the impact has been defined as shown below.

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[25] https://la.usembassy.gov/wp-content/uploads/sites/85/LAOS-2020-HUMAN-RIGHTS-REPORT.pdf

[26] https://www.dol.gov/sites/dolgov/files/ILAB/research_file_attachment/GLO%2008%20Lao%20inter-agency.pdf

Table 7.41: Magnitude of Impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Workers on the Project site are directly exposed to risks associated with labour management and exploitation
Duration	**Temporary**: Duration of impact will last throughout the construction phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Nearly 500 workers affected by Project's labour management standards and practices
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Medium**

Overall, workers within the Project's contractors, subcontractors and primary supply chains are considered to have a medium level of sensitivity due to the weak enforcement of labor laws in Laos.

According to Table 7.42 below the **impact significance** is considered as **Moderate**.

Table 7.42: Impact Significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.5.1.3 Occupational Health and Safety (OHS) Incidents

Construction of a dry port site presents various OHS risks for workers. While data specific to Laos is not readily available, evidence available at the global level shows that a disproportionate number of the two million work-related deaths recorded each year occurs to workers in Southeast Asia.[27] Common causes identified include poor H&S management, weak enforcement of OHS laws, exposure to air pollution and industrial emissions, and high worker turnover.

This indicates that Project workers may be exposed to the following general OHS risks during the construction phase throughout the Project site:

- ✓ Physical hazards from use of heavy equipment including cranes and manual handling, and electrical hazards from the use of tools and machinery;
- ✓ Exposure to hazardous and/or explosive materials and chemicals;
- ✓ Trip and fall hazards, and falling objects;
- ✓ Dust, noise, and vibration;
- ✓ Heat and heat exhaustion from high temperatures; and

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[27] https://www.reuters.com/business/sustainable-business/work-related-deaths-kill-nearly-2-mln-people-year-un-agencies-2021-09-17/

- ✓ Transport and traffic accidents.

As further described under Social Conflict and Violence below, gender-based violence (GBV) is an additional risk that is present for women workers on construction and industrial sites, particularly in areas with insufficient lighting and security oversight.

Project workers, particularly those in low-skilled roles, are considered to possess medium impact sensitivity as occupational injuries and time off work due to illness could affect their longer-term employment prospects in similar roles and affect their wage-earning capacity. On a construction site without sufficient mitigation measures in place, the risk would be experienced on a daily basis.

The Project Company has an OHS management system in place, including an OHS Policy, Safety, Security, Health, Environment and Community Policy, health and safety pledge to be signed by contractors, and Employee Handbook applicable to both employees and contractors, which details the workplace OHS guidelines, types of training to be provided, employer responsibilities for OHS management and emergency procedures. The Project's organizational structure includes an EHS team overseen by the HSSE Manager. In addition, various OHS measures are in place including a detailed induction presentation, provision of personal protective equipment (PPE) such as helmets and masks to workers, regular safety inspections and training sessions, daily safety toolbox talks, site safety reports identifying non-compliances and near misses, as well as regular disinfection of office buildings and Covid-19 awareness training for workers.

The magnitude of the impact has been defined as shown below.

Table 7.43: Magnitude of impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Workers on the Project site are directly exposed to OHS risks
Duration	**Temporary**: Duration of impact will last throughout the construction phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Nearly 500 workers affected by Project's OHS standards and practices
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Medium**

Workers within the Project's contractors, subcontractors and primary supply chains are considered to have a medium level of sensitivity given the potential impacts of OHS incidents and injuries on their livelihoods.

According to Table 7.44 below the **impact significance** is considered as **Moderate**.

Table 7.44: Impact Significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.5.1.4 Project-Induced Migration

In-migration of jobseekers into the Project AoI may occur due to the job opportunities presented by the Project and is most likely to occur during the construction phase when labour requirements are highest and most diverse. The magnitude of the expected influx has been preliminarily assessed in Table 7.45 below.

Table 7.45: Preliminary assessment of magnitude of influx

Factors[28]	Expected magnitude of migration impacts
Scale of project (project construction and operation, labour goods and services)	Moderate – Construction works are expected to last until November 2021, with a moderately large construction workforce of approximately 456.
Area capacity to meet project needs/ population density of project area	Low – The surrounding area is suburban with high population density and low availability of land. However, given the location of the local villages within the Vientiane Capital area, the community members have easy access to a variety of public services and local representatives consulted did not indicate particular problems with availability of resources relating to water, education and health.
Tendency towards concentration of populations	Low – Populations are dispersed across various villages and suburbs throughout the Vientiane Capital area, and there is no one specific area in which populations tend to be concentrated.
Opportunities for compensation and benefits speculation	Low – Given that displacement took place on the Project site in previous years, there is the possibility of newcomers attempting to make fraudulent claims for historical displacement impact and eligibility for compensation. However, the likelihood of such cases is considered low given that local village authorities would be able to verify their presence in affected areas in past years.
Proximity to large population centres	High – the Project AoI is a suburban area of Vientiane Capital.
Conclusion	**The magnitude of the rate of influx is expected to be low**

As noted in the socioeconomic baseline section, migration patterns in Laos tend to comprise movements of rural populations to urban areas, in particular to Vientiane Capital, where 4 in 10 people are lifetime migrants. Local authorities did not indicate any significant migration patterns that have been noted in their communities nor notable impacts on the housing market and availability of public infrastructure. There has been no significant influx of newcomers reported linked to the establishment of industrial projects in the area in recent years, such as the Lao-Chinese and Lao-Thai railway projects and the Dry Port Project.

We consider it likely that jobseekers who move to Vientiane Capital have a diverse range of options with regards to housing and job opportunities and do not need to settle in the four local villages, in this way avoiding placing particular strains on the local communities' infrastructure and services such as health and educational infrastructure, housing market, cost of basic goods and activities, livelihood opportunities, availability and quality of environmental resources including drinking water and changes to security, conflict and crime levels.

Given the recent completion of the Project's construction phase, we do not anticipate increased in-migration for the remainder of the construction phase. Additionally, as the project proceeds from construction to operations and requires a smaller and more stable workforce, it is expected that the likelihood of in-migration for the purpose of Project employment will continue to decrease going forward.

Residents of the Project AoI possess low sensitivity. Although they have low capacity to absorb population growth with significantly high population density, given their suburban location and proximity to Vientiane Capital, their access to public facilities such as health and educational centres and housing has not been affected to a notable degree.

According to Table 7.46 below the **impact significance** is considered as **Negligible**.

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[28] Source: IFC Guidance "Understanding project-induced in-migration" https://www.ifc.org/wps/wcm/connect/8f097545-9f7c-4e83-a5f5-a7feeada55af/Influx_Part2.pdf?MOD=AJPERES&CVID=nrOWC.i

Table 7.46: Impact Significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	**Negligible**	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

7.5.1.5 Social Conflict and Violence

Interactions between workers in the accommodation camps and local communities may lead to conflicts and tension arising from cultural, religious and language differences. Local stakeholders consulted have not indicated issues to date concerning the behaviour of workers from accommodation camps, and appear to be accustomed to the presence of newcomers from rural areas and neighboring countries, given Vientiane's central location directly across from Thailand. Additionally, as worker housing is provided on the Project site, resource conflicts for housing between the local population and migrant labour force are unforeseen.

Private security personnel are employed for 24-hour patrols, to provide protection against potential risks and threats to the Project personnel, property and assets on the Project site throughout the construction phase, with a CCTV monitoring system in place. Risks to community health and safety that may arise from the presence of security personnel in the area include excessive use of force, inappropriate use of weapons and abuse of human rights by the security staff. In Laos, police and public security forces have been implicated in violation of human rights, although there is less information available on the conduct of private security personnel.[29] However, given that the Project primarily employees local community members for the security roles, the likelihood of such conflict and abuse is considered low.

Gender-based violence (GBV) is a key CHS risk throughout Laos and the world. Some of the key, general risk factors for GBV in construction include the large-scale influx of a temporary, migrant construction workforce to a rural host community; remote locations with limited access to resources to report GBV and receive support; presence of security personnel; and employment of women on-site in direct or indirect employment such as through catering or cleaning services.[30] Several of these factors apply to the Project. The Project's worker code of conduct includes provisions on bullying and sexual harassment in the workplace. While incidents of GBV associated with the Project have not been formally reported to date, this is to be expected given the current lack of a secure, anonymous reporting procedure, and the risk is considered to be present for the remainder of the construction phase.

The magnitude of the impact has been defined as shown below.

Table 7.47: Magnitude of impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Local community members are directly exposed to H&S risks
Duration	**Temporary**: Duration of impact will last throughout the construction phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings

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29 https://www.state.gov/reports/2020-country-reports-on-human-rights-practices/laos/

30 https://www.ifc.org/wps/wcm/connect/62316c4d-6518-4a7b-881d-461c219c46a5/SectorBrief_AddressingGBVH_Construction_July2020.pdf?MOD=AJPERES&CVID=nddoFUn

Impact Definition Criteria	Characteristics
Scale	Local communities comprising a total population of 9,026 across four villages
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Medium**

Given various risks to CHS that have the potential to arise in the context of the Project, the local communities' sensitivity is considered medium, and the magnitude of impact is assessed to be medium, for an overall **Moderate impact significance** as shown below.

Table 7.48: Impact significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.5.1.6 Increase in Communicable Disease Incidence Rates

Within the context of CHS risks, the risk of disease outbreaks is typically associated with demographic changes and labour migration, with a generally higher risk during construction due to the higher number of workers, presence of a workers' accommodation camp and the presence of non-local and foreign workers.

The Covid-19 pandemic presents a CHS risk, with Laos having experienced moderately high rates of Covid-19 at 1,228 per 100,000,[31] the recent spread of the Omicron variant presents an ongoing concern for Laos and the Project site. There may also be an increased incidence of sexually transmitted infections (STIs), due to a migrant workforce staying in the area without family and increase in the cash economy from Project-associated wages. HIV transmission risk is low across Laos, with an adult prevalence rate of 0.3%, and a slightly higher risk of transmission for sex workers (among whom the HIV prevalence rate is at 0.8%) as well as their clients.[32] Malaria presents a minimal risk in the Vientiane area.[33]

The magnitude of the impact has been defined as shown below.

Table 7.49: Magnitude of impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Local community members are directly exposed
Duration	**Temporary**: Duration of impact will last throughout the construction phase

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31 https://covid19.who.int/region/wpro/country/la

32 https://www.unaids.org/en/regionscountries/countries/laopeoplesdemocraticrepublic

33 https://www.iamat.org/country/laos/risk/malaria

Impact Definition Criteria	Characteristics
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Local communities comprising a total population of 9,026 across four villages
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Medium**

Given the sufficient health infrastructure available throughout the local villages and Vientiane Capital, the local communities' sensitivity to the risks associated with transmission of communicable disease in the absence of mitigation measures is assessed to be low, although Covid-19 transmission remains an ongoing risk particularly given the high population density in the area.

According to Table 7.50 and Table 7.39 below the **impact significance** is considered as **Minor**.

Table 7.50: Impact significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	**Minor**	Moderate	Major
High	Moderate	Major	Major

7.5.1.7 Increased Pressure on Existing Infrastructure and Services in the Project Area

It is estimated that the daily waste generated by the Vientiane city is around 400 tons/day (146,000 tons/year) which is transported to the landfill site located approximately 25 km from the project site.

The production of solid waste (including construction waste, waste from working camps, hazardous waste and exhausted oil) during the construction phase is estimated to be approximately 450 tons per annum (assuming conservatively 365 days per year). The waste contractor will collect and transfer (on a weekly basis) the waste to the disposal facility (landfill). Relative to the waste generated by the city, the project contribution during the construction phase is considered to be negligible. No appropriate facilities for the disposal of hazardous waste are available in the city or immediate surrounds and thus there is no available capacity in the area for the disposal of hazardous waste.

Table 7.51: Magnitude of Increased pressure on the landfill

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Temporary
Extent	Regional
Scale	Negligible with respect to total volume generated by project versus the city. Given that there are no

Impact Definition Criteria	Characteristics
	hazardous waste facilities available, there can be no capacity constraints
Frequency	Ongoing - duration of construction activities
Likelihood	Likely
Magnitude	**Negligible**

Receptor sensitivity can be considered **Low**.

According to Table 7.52 below the **impact significance** is considered as **Negligible**.

Table 7.52: Impact Significance for increased Pressure on the Landfill

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	**Negligible**	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major x
High	Moderate	Major	Major

7.5.1.8 Economic Benefits

The Project's main anticipated impacts on the local economy are through the beneficial effects of generation of employment, tax revenues and procurement opportunities as detailed below.

Local Recruitment

Among the 456 workers employed in the construction phase, 327 or 72% are Lao nationals, with the majority based in the Vientiane Capital and nearby provinces. While details are not available on how many of these roles were filled by members of the four local communities, it is expected that the majority of opportunities available for local community members have been for unskilled roles with fewer skilled technical and managerial jobs. Unskilled roles will include construction labourers and the provision of services for workers such as food and refreshment, sanitation and hygiene. This employment generation will result in the provision of income for workers and their families contributing to their medium-term wellbeing. Although the unskilled roles are mainly temporary, it is envisaged that the experience gained may improve future job prospects as local people will develop new and/or enhance existing skills. The Project also has a local recruitment mechanism in place with the cooperation of local village committees, employer and Project department, through which local candidates with no criminal records are hired for security personnel roles.

Indirect socioeconomic benefits for local communities will result from local workers' earnings being spent on local goods and services. The presence of a construction workforce at the Project site will result in the indirect impact of increased revenue for local and regional businesses. This includes petty traders selling goods and services to the industrial workforces in the area and transport providers including bus providers and motorcycle taxis.

Generation of Tax Revenues

Tax contributions will be paid by the Project Company to the budgets of various levels of Lao government including the Vientiane Prefecture, Hadxayfong and Xaysettha Districts, and the villages of Dongphosy, Thanaleng, Dongphonhea and Nakhoua Tai. The contributions may be used for development of local infrastructure and social investment by local authorities, with benefits generated via this impact to be delivered to local communities who are the ultimate receptors of the impact. Given that the proportion of the Project's tax contributions that would be allocated for local infrastructure and social development is unknown, the impact is considered to have a potential, low degree of positive effect.

Procurement of Local Goods and Services

The construction works present potential procurement opportunities for businesses in the vicinity such as suppliers for catering, commodities and natural resources. The beneficiaries are considered to be of low sensitivity as the businesses are existing operations that are not dependent on the Project as their sole source of income. The impact is expected to be small-scale as different suppliers and businesses would be used for specific, varied and temporary procurement and customer needs throughout construction. As a result, the impact of increased revenue is expected to have a low degree of short-term beneficial effect.

7.5.1.9 Cultural Heritage

The construction of the Project site previously required the relocation of a graveyard located in Nakhouay Tai village at an unconfirmed date. The Project Company compensated the village authorities for the cost of organising the ritual ceremony for relocation of the site. Discussions with Project personnel and District and village authorities have revealed no other sites of cultural heritage significance that may experience direct or indirect Project impacts. Given the distance between the village temples and the Project site, with the nearest one located 500m from the Project boundaries in the Nakhoua Tai village, it is considered that the Dry Port Project will not result in cultural heritage impact.

7.5.2 OPERATION PHASE

7.5.2.1 Land Acquisition and Resettlement

Land take required for the Project encompassed the Project site, access road and transmission line. No additional displacement impact is envisaged during the operation of the Project. Beyond the boundaries of the Dry Port site, the surrounding areas will remain accessible for public use and thus no adverse impact in terms of access restrictions or land acquisition is anticipated.

7.5.2.2 Labour Management & Exploitation

The operational workforce is anticipated to be approximately 200, smaller than the peak of 456 during the construction phase. Two accommodation buildings are also to be used with a total capacity of 125 to 164 staff members which will be located in the Office Building Zone. The smaller workforce indicates that direct, regular monitoring and oversight of labour rights, working conditions and accommodation facilities will be more feasible, reducing the risk of labour exploitation.

While there is a written workers' grievance mechanism in place, VLP personnel stated that workers generally verbally express their grievances through their line managers, with some shown to be afraid to file grievances due to fear of dismissal. This leaves open the risk of labour exploitation and management issues not being appropriately reported and handled. As a result, the workers' level of sensitivity remains medium, while the magnitude is considered low as shown below.

Table 7.53: Magnitude of Impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Workers on the Project site are directly exposed to risks associated with labour management and exploitation
Duration	**Long Term**: Duration of impact will last throughout the operation phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Approximately 200 workers affected by Project's labour management standards and practices
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Low**

As per Table 7.54 below the **impact significance** is considered as **Minor**.

Table 7.54: Impact significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	**Minor**	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

7.5.2.3 OHS Incidents

The operation of a dry port a series of processes such as manual and automated handling, loading and unloading, lifting, and moving containers and cargo. During these processes, accidents and potential health problems of the workers is a likely risk with workers being exposed to dust, noise and high temperature effects and physical, chemical or accidental hazards that contribute to risk of injuries, such as through over-exertion, heavy lifting and slips. Taking into account the processes involved in the operation of a dry port, the following OHS risks have been identified in the absence of appropriate mitigation measures in place:

Table 7.55: OHS Risks in the Operational Phase

OHS risks	
✓ Exposure to organic and inorganic dust, particularly when handling dry cargo and cargo from roads, and risk of pneumoconiosis, emphysema, bronchitis, and fibrosis for workers with long-term exposure to fine particulate dust.	✓ Chemical hazards including pesticides, fumigants and spillage of hazardous and chemical materials including in cargo in storage or transit.
✓ Exposure to noise, including through cargo handling, loading/unloading containers, and vehicular traffic.	✓ Vehicle movements and traffic, and risk of transport incidents such as pedestrian or vehicle collisions with other vehicles.
✓ Confined spaces, for instance within cargo holds, silos and water tanks.	✓ Working from height including use of ladders and scaffolding.
✓ Manual handling including all forms of lifting, lowering, pulling and pushing of loads, and associated risks of heavy lifting, over-exertion and falling or moving objects.	✓ Heat (exposures to heat during on-site activities).
✓ Fire incident risks.	✓ Maintenance of manual and automated equipment and machinery.
	✓ Contact with, or capture in, moving machinery (e.g. dump trucks, front loaders, forklifts.
	✓ Slips, trips, and falls in working areas.

The Project's Emergency Prevention and Response Plan provides adequate details on procedures to be implemented to prevent and address incidents including, fire, chemical spills and gas leaks, the applicable emergency roles and responsibilities, evacuation procedures and reporting processes.

The magnitude of the impact has been defined as shown below.

Table 7.56: Magnitude of Impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Workers on the Project site are directly exposed to OHS risks
Duration	**Long Term**: Duration of impact will last throughout the operation phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Approximately 200 workers affected by Project's OHS standards and practices
Frequency	Ongoing
Likelihood	Possible
Magnitude	**Low**

Project workers are considered to possess medium sensitivity as occupational injuries could affect their longer-term employment prospects in similar roles. As per Table 7.57 below the **impact significance** is considered as **Minor**.

Table 7.57: Impact significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	**Minor**	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

7.5.2.4 Community Health and Safety Impacts

During the operation phase, unarmed security personnel man each security checkpoint, with the CCTV monitoring room being operated by the Project Company's H&S team. The access road will be fenced to avoid unauthorised entry, and custom police will be on duty at the entrance. The security team submits security reports for each incident that occurs to the Head of HSSE, with most cases entailing trespassing. Due to the reduced number of workers present on site in the operational phase, the likelihood of encounters of conflict between local communities and Project workers and security staff will be lower. Risks pertaining to gender-based violence will remain active but to a lesser extent than in the construction phase, also given the smaller workforce.

The ongoing Covid-19 pandemic and risk of other communicable diseases such as STIs will continue to be present in the operational phase, to a lesser extent than in the construction phase given the decreased workforce. The provenance of the workers and types of shifts used on site will determine the level of risk of Covid-19 circulating in the Project area and surrounding communities; frequent movements of non-local workers arriving in Laos may present a risk of Covid-19 transmission from other countries with higher incidence rates.

Traffic impacts during the operational phase of the project remains to be assessed for the project as part of a traffic impact assessment. However it is anticipated that there will be an impact on residents, social infrastructure and community facilities located along the access roads. There could also be an impact in terms of mobility and access from properties adjacent to the road both in terms of pedestrian and vehicle movements. The number of properties, structures and facilities affected and the extent thereof will be assessed following the completion of the additional work.

The magnitude of the impact has been defined as shown below.

Table 7.58: Magnitude of Impact

Impact Definition Criteria	Characteristics
Type	**Direct:** i.e. Local community members are directly exposed to H&S risks
Duration	**Long Term**: Duration of impact will last throughout the operation phase
Extent	**Local:** i.e. limited to the Project site and immediate surroundings
Scale	Local communities comprising a total population of 9,026 across four villages
Frequency	Ongoing
Likelihood	Likely
Magnitude	**Medium**

Given various risks to CHS that have the potential to arise in the context of the Project, the local communities' sensitivity is considered medium, and the magnitude of impact is assessed to be Medium, for an overall **Moderate impact significance** as shown below.

Table 7.59: Impact significance

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	**Moderate**	Major
High	Moderate	Major	Major

7.5.2.5 Increased pressure on existing infrastructure and services in the project area

It is estimated that the daily waste generated by the Vientiane city is around 400 tons/day (146,000 tons/year) which is transported to the landfill site located approximately 25 km from the project site.

The production of solid waste (including waste from operation activities and hazardous waste) during the operation phase is estimated in approximately 60 tons per year (assuming conservatively 365 days per year). The waste contractor will collect and transfer (on weekly bases) the waste to the disposal facility (landfill). Relative to the waste generated by the city, the project contribution during the construction phase is considered to be negligible, however the lifespan of the facility has been indicated to be only 8-10 years. No appropriate facilities for the disposal of hazardous waste are available in the city or immediate surrounds and thus there is no available capacity in the area for the disposal of hazardous waste.

Table 7.60: Magnitude of Increased pressure on the landfill

Impact Definition Criteria	Characteristics
Type	Direct
Duration	Long term
Extent	Regional
Scale	Negligible 60 tons/year
Frequency	During operation activties
Likelihood	Likely
Magnitude	**Negligible**

Receptor sensitivity can be considered Low.

According to Table 7.61 below the **impact significance** is considered as **Negligible**.

Table 7.61: Impact significance for increased pressure on the landfill

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	**Negligible**	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major x
High	Moderate	Major	Major

7.5.2.6 Economic Benefits

The Project's main anticipated beneficial impacts on the local economy through the generation of employment, tax revenues and procurement opportunities are expected to continue throughout the operational phase on a smaller scale. The number of job opportunities will be lower than in the construction phase, although the roles available will be longer-term contracts, enabling a stable source of income for several years for the local workers who are recruited. The size of the operational workforce to be used and the geographic source of the workers to be recruited is pending verification by the Project Company.

Local suppliers may be contracted for Project site activities such as cleaning, cooking/catering services, transportation, and waste transportation services. It is however expected that the extent of this demand will be lower than in the construction phase

7.5.3 DECOMMISSIONING PHASE

Decommissioning phase activities are likely to be similar to the construction phase. During activities linked to dismantling, removal, recycling, decontamination, transport and disposal of metal, wood, waste oils and general waste, there will be similar OHS and CHS risks to be considered with regards to noise, vibration and dust, while Project traffic will create similar disturbances for local road users and present the risk of collision between workers, community members and vehicles. Depending on the size and type of the workforce to be used for decommissioning works, labour management risks may persist to a smaller degree and any retrenchment that takes place must be appropriately managed. Removal and deconstruction of the site must be undertaken carefully to avoid any potential leaks and spills that may affect surrounding communities and land. Land acquisition impact is not anticipated for this phase.

The overall magnitude of the potential impacts during decommissioning is considered medium, with workers and local communities possessing medium sensitivity. Thus, potential impact envisaged for the decommissioning phase

is considered to be of moderate significance, in line with the overall significance of impacts envisaged for the construction phase.

7.5.4 MITIGATION AND ENGAGEMENT MEASURES

7.5.4.1 Construction Phase

Mitigation measures for the Project's construction phase are listed in Table 7.62 below.

Table 7.62: Mitigation Measures Required During the Construction Phase

Impact	Mitigation measures
Land Acquisition and Resettlement	Supplementary actions to address the gaps identified in the Project's previous land acquisition process are further detailed in the Land Review study. Key actions required include the below, among others: ✓ Expand the Resettlement Coordinator role to manage the resettlement close-out activities going forward, with responsibilities to include coordination with relevant parties, and tracking compensation payments. ✓ Develop a register to track all outstanding compensation payments, including the current status, schedule of remaining payments, amounts paid to date, amount to be paid, and cases under negotiation. ✓ In collaboration with the Resettlement Committee, develop consultation strategy to minimise grievances concerning compensation payments and clarify key information such as valuation rates used and provision of new land plots for PAPs. ✓ Develop livelihood restoration plan (LRP), for identification of livelihood restoration measures that are appropriate for the PAPs. The scope of the LRP will be broadened to include all PAPs at the access road area, and any PAP that can prove previous displacement impact from the 55ha dry port area, to ensure that both those that were recently and previously displaced can benefit from the additional support. The LRP will describe the overall resettlement impact and livelihood restoration programmes tailored for the priorities and needs of the PAPs. ✓ Develop and disclose a formal resettlement grievance mechanism and maintain a grievance register to track the resolution and outcomes of all grievances received. ✓ For the access road site, commence quarterly monitoring of the PAPs' socioeconomic status following resettlement, looking at indicators including current status of PAPs with regards to: Income levels; Standard of housing; Expenditures; Livelihood activities; Status of vulnerable PAPs; and Corrective actions to address gaps identified on ongoing basis. ✓ Following completion of the compensation payments and livelihood restoration measures, appoint external consultant to conduct independent audit of the access road resettlement process.
Labour Management & Exploitation	The Project Company's existing suite of labour and HR documentation includes the Human Resources (HR) Policy, employee handbook, worker Code of Conduct, OHS and Safety, Security, Health, Environment and Community Policies. The HR Policy will be supplemented with additional commitments for alignment with IFC PS2 requirements, including commitments to not engaging in discriminatory practices in the recruitment, training, promotion and dismissal procedures, and not engaging in the use of child and forced labour, to be applied to all contractor, subcontractor and primary suppliers' workforces.
OHS Incidents	The Project Company has an OHS management system in place, including an OHS Policy, Safety, Security, Health, Environment and Community Policy, Environmental Management Procedure, Contractor Management Procedure, Safety Manual, Hazard Identification and OHS Risk Assessment Procedure, Training Procedure, Fire Fighting Procedure, Emergency Preparedness Plan, and Employee Handbook, which details the workplace OHS guidelines,

Impact	Mitigation measures
	types of training to be provided, employer responsibilities for OHS management and emergency procedures. For consistency and full alignment with international industry good practice, the Safety Manual will be updated to incorporate the following additional provisions: ✓ Regulatory framework, national and international requirements and guidance, including WB EHS Guidelines for Ports, Harbors and Terminals (2017); ✓ OHS and hazard risk identification and assessment for all work activities, not limited to office work; ✓ Health monitoring particularly for workers engaged in hazardous work; ✓ Reporting on all H&S incidents including accidents, injuries, lost-time incidents, and near misses; and ✓ Monitoring, auditing and reporting on H&S Performances, including contractors' H&S performance. Mitigation of Covid-19 risks is addressed separately within the "Increase in Communicable Disease Incidence Rates" row below. OHS measures specific to risks relating to other themes such as waste, noise and environmental hazards are addressed in the respective sections.
Project-induced in-migration	Supplementing the existing process for managing external grievances submitted by PAPs, a formal community grievance mechanism that is in line with IFC PS1 requirements will be developed and disclosed to external stakeholders. This mechanism will aim to facilitate receipt and monitoring of complaints including regarding adverse impacts of Project-induced in-migration on local communities. This procedure will be detailed within the Project's Stakeholder Engagement Plan (SEP) prepared as part of this Supplementary ESIA package.
Social conflict and violence	To mitigate risks of social conflict between local communities and Project workers and/or security staff, the following measures will be applied: ✓ To supplement the existing worker code of conduct included in the Employee Handbook, additional commitments will be included on respecting local populations and their norms and cultural heritage beliefs and sites; de-escalation of conflicts; not engaging in illicit behaviour and crime; prohibition of hunting, fishing and gathering of wild crops; and maintaining a safe and peaceful environment on the Project site and within local communities. This document will be written in plain language in Lao and other languages applicable for the workforce, and signed by each worker to confirm their receipt and acknowledgment. ✓ Refresher training will be provided on this code of conduct to all workers, including contractors', particularly at induction and dedicated toolbox talks. ✓ All contractors and subcontractors will be required to have similar codes of conduct, policies and training programmes for their workforces or disseminate the Company's one. A Security Management Plan will also be developed and implemented by the Project Company that is aligned with the UN Voluntary Principles on Security and Human Rights and the IFC's 2017 Good Practice Handbook 'Use of Security Forces: Assessing and Managing Risks and Impacts'. This plan will include but not be limited to: ✓ Roles and responsibilities of Project Company, contractors and security provider. ✓ Procedures to undertake due diligence on security firms prior to awarding contracts, to check for past claims related to human rights abuses. ✓ Hiring requirements for guards including criminal background checks. ✓ Use of force policies and specialised training of security staff in conflict resolution.

Impact	Mitigation measures
	✓ Monitoring and community grievance resolution procedures. ✓ Management of relations with and oversight of contracted gendarmerie. ✓ Equipment and types and frequency of training to be provided to guards. A Code of Conduct for Security Personnel will also be developed with commitments to respecting human rights and local cultural norms, de-escalation of conflict and proportionate use of force only where necessary. To mitigate risks of GBV, the following measures will be implemented: ✓ Contractor policies and contracts will be required to include clauses on GBV, for example requiring their staff to sign codes of conduct. ✓ Periodic mandatory training on GBV will be delivered to all workers, including contractors and subcontractors, addressing definitions of GBV, roles and responsibilities of all actors, and GBV incident reporting mechanisms and accountability structures. ✓ The grievance mechanism process for both workers and external stakeholders will enable confidential and/or anonymous submission of claims relating to GBV. A female employee or other female local person, such as nurse or teacher, will be dedicated to collect potential claims of GBV. This grievance mechanism will be disseminated among residents with specific care for including women. ✓ On the Project site, adequate lighting will be installed throughout the site, including around latrines and access routes. Separate, lockable latrines for female workers will also be installed.
Increase in communicable disease incident rates	A community health and safety (CHS) plan will be developed that is aligned with Lao laws and WB EHS guidelines and best international practices. It will collate all mitigation measures listed in other management plans that are relevant for CHS, and also cover liaison with local medical institutions for disease prevention and monitoring including for Covid-19. Further measures are identified under the Operation Phase section below. **COVID-19** A Project-specific Covid-19 management plan will be developed that details the actions and mitigations to be taken during Covid-19 pandemic in line with international best practices and IFC guidelines[34]. It will explain risk groups, potential and confirmed cases to date and instructions for the Project Personnel for different scenarios. Brochures, notice boards and toolbox talks will be used to raise staff awareness of measures to be taken including personal hygiene, social distancing, and mask and disinfectant use. Group meetings will be conducted in line with guidance provided by the IFC/EBRD briefing note on stakeholder engagement during the Covid-19 crisis (April 2020).[35]
Economic Impacts	Given the completion of the construction phase at the time of this report, measures to maximise economic benefits for local communities are further detailed under the Operation Phase section below.

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[34] https://www.ifc.org/wps/wcm/connect/2ab83243-0b50-4d80-a007-f96c4b589634/Tip+Sheet_Interim+Advice_OHS_COVID19_April2020.pdf?MOD=AJPERES&CVID=n7R2Q0P

[35] https://www.ebrd.com/covid19-consultation.pdf

7.5.4.2 Operation Phase

Mitigation measures for the operational phase are included in Table 7.63 below.

Table 7.63: Mitigation Measures Required During the Operation Phase

Impact	Mitigation measures
Land acquisition and resettlement	The implementation of the resettlement management and monitoring activities will be continuous throughout the operational phase. If additional land acquisition and resettlement needs are identified, for instance for associated infrastructure, a resettlement policy framework will be developed to guide implementation in line with IFC PS5 requirements.
Labour management & exploitation	The HR policy will be updated for the operational phase, with ongoing implementation and monitoring activities taking place throughout to address potential risks associated with worker rights and accommodation. The following additional management plans will be developed: ✓ Labour management plan, to be applicable for all contractors and subcontractors. The plan will establish practical steps for how Project workers are to be managed, in accordance with the HR policy commitments. The plan will define the Project's Company's obligation and right to monitor and audit contractors' labour management, as well as define how labour requirements will be included in contractual terms. It will address requirements on worker contracts, the worker grievance mechanism to be in place, working hours and overtime, regular inspections/monitoring and corrective action planning of working conditions and labour rights, monitoring of child labour, and other HR regulations. ✓ Worker Accommodation Management Plan, for design, management and monitoring of worker accommodation facilities in line with requirements of the IFC Guidance Note on Worker's Accommodation Processes and Standards. ✓ The workers' grievance procedure will be updated to indicate timeframes for acknowledgement and resolution of worker grievances received. Subsequently, the procedure will be disseminated to all workers on site as part of the induction training and posted in various worker locations including offices and canteens. Emphasis will be placed on the lack of retribution or punishment for any worker that submits grievances, and the ability to submit claims in an anonymous or confidential manner. Grievance boxes will be placed throughout site to facilitate easy and private submission of claims.
OHS incidents	The Safety Manual and corresponding policies and management plans will be reviewed and updated to reflect the pertinent hazards and risks in the operational phase. The documents will identify specific mitigation measures to reduce OHS risks associated with cargo storage, handling and lifting activities, exposure to dust and noise, working at heights, mechanical lifting, and other hazards – e.g., Use of dust control measures, heat prevention and control techniques, noise emissions control methods and use of proper PPE. Project staff residing in worker accommodation will be provided with sufficient sanitary and first aid/medical supplies, in line with the IFC Guidance Note on Worker's Accommodation Processes and Standards. These will be detailed in the Worker Accommodation Management Plan.
Community Heath and Safety	It is anticipated that with the exception of the traffic impacts during the operational phase of the project, other community health and safety impacts will be of a low significance. For this reason, only traffic impacts are suggested here as mitigation measures. The mitigation of traffic impacts will also be developed in the Traffic Management Plan, but will include preventative measures such as training, provision of signage, possibility for road design modifications and monitoring of adherence to the plan and safe driving practises including speed restrictions, alcohol and drug spot tests, accident rates and causes etc. Consultation with the communities that may be impacted by traffic impacts will be undertaken and they will be encouraged to make use of the grievance mechanism for any traffic related complaints. This could include structural damage to buildings.

Impact	Mitigation measures
Social conflict and violence	The Project Company will continue implementing the mitigation measures as identified for the construction stage, to address potential risks associated with social conflict and gender-based violence.
Increase in communicable disease incident rates	The Project Company will continue implementing the mitigation measures as identified for the construction stage, to address potential risks associated with communicable disease. The CHS plan will be reviewed and updated for the operational phase, taking into account hazards specific to port operations production (such as traffic accidents, fire and noise pollution) to which local communities may be exposed. To avoid or limit the potential introduction and spread of communicable and vector-borne diseases among Project workers and local communities, the following mitigation measures will be implemented: ✓ Medical check-ups during the recruitment process, monitoring of infectious diseases within workforce and periodic medical check-ups. ✓ The areas such as the rooms, sanitary areas, infirmary and first-aid facilities in the project site are in compliance with the requirements of IFC/EBRD Workers' Accommodation: Processes and Standards (2009) Guideline. ✓ The workers are provided with training on health, hygiene and infectious diseases. ✓ Identify opportunities to support local public health campaigns that focus on prevention of communicable and vector-borne diseases.
Economic impacts	Where feasible, the personnel employed during construction will be retained for the operation of the plant. The Project Company and contractors will aim to utilise local skills from within the Project AoI as much as practical and to the extent permitted by non-discrimination provisions of Lao legislation. To this end, a Local Recruitment Plan will be developed to supplement the existing recruitment policy and procedure, maximise job opportunities for local residents, maintain a fair and transparent local recruitment process, and facilitate skills development of the local workforce. The plan will specify how available job opportunities will be disclosed to local community members, provisions to facilitate recruitment and upskilling of women and disabled candidates, and initiatives to encourage women and disabled candidates to apply for Project roles. The Project Company will recruit qualified and experienced expatriate staff to fill positions where experienced local staff are not available to ensure sufficient management of environmental and social impacts and implementation of mitigation, while making efforts to improve the skills of local staff and organize special courses. All on-the-job and technical training will be provided free of charge to workers employed by the contractors and subcontractors. Local businesses in the area will be given prior notice at least one month in advance concerning the end of the operational phase and the number of workers who will be present on-site throughout the decommissioning phase, so that they can accordingly prepare their commercial activities and stock for the upcoming reduction in customer numbers.

7.5.4.3 Decommissioning Phase

Most of the mitigation requirements required for the construction and operational phases also apply to the decommissioning phase. This is particularly with respect to management of risks related to OHS, labour management, and community health and safety, which will be reflected in the Decommissioning and Reinstatement Management Plan to be developed for the Project.

7.5.5 RESIDUAL IMPACTS

Residual impacts are those impacts assessed to be significant, that remain after the implementation of mitigation measures. The following summaries the pre-and post mitigation (residual) assessment of impacts. Considering the

Project has completed construction and commenced operations, prompt implementation of the measures will be required for adequate mitigation of the risks and impacts.

Impact Assessment Rating Pre-Mitigation	Residual Impact
Construction Phase	
Land Acquisition and Resettlement (Major)	Land Acquisition and Resettlement (Moderate)
Labor Management & Exploitation (Moderate)	Labor Management & Exploitation (Minor)
OHS Incidents (Moderate)	OHS Incidents (Minor)
Project-Induced Migration (Negligible)	Project-Induced Migration (Negligible)
Social Conflict and Violence (Moderate)	Social Conflict and Violence (Minor)
Increase in Communicable Disease Incidence Rates (Minor)	Increase in Communicable Disease Incidence Rates (Negligible)
Operation Phase	
Labor Management & Exploitation (Minor)	Labor Management & Exploitation (Negligible)
OHS Incidents (Minor)	OHS Incidents (Negligible)
CHS Impacts (Moderate)	CHS Impacts (Minor)

8 S-ESMMP FRAMEWORK AND SUMMARY MANAGEMENT PLANS

An Environmental and Social Management and Monitoring Plan (ESMMP) was compiled by LCG and Innogreen in January 2020 and submitted with the ESIA for approval by MoNROE.

This ESMMP provided the following information:

- ✓ Environmental and Social Policy of the Project Company;
- ✓ Summary of Impacts;
- ✓ Management and Monitoring Plan for Construction and Operational Phases including more focused sub-plans;
- ✓ Anticipated Budget;
- ✓ Community Development Plan.

The ESMMP Framework did not include detailed monitoring measures and indicators, timeframes for implementation of the planned activities and responsibilities for the management and monitoring measures identified.

As a result, as part of the desk-top review, RINA suggested that a new S-ESMMP Framework be prepared in its entirety to ensure that all E&S aspects of the Project are appropriately managed, not just those aspects addressed as part of the scope of the S-ESIA. It has been prepared to cover all phases of the Project, but given the near completion of the Construction Phase will largely focus on the Operational Phase of the Project.

The S-ESMMP Framework will be provided as Annexure B to this S-ESIA and has been prepared in a tabular format.

The S-ESMMP Framework has addressed:

- ✓ Mitigation Measures identified through the assessment of E&S Components;
- ✓ National and International Standards to be applied;
- ✓ Responsible Parties for implementing the mitigation and management measures identified for each E&S component for Operation Phase;
- ✓ Frequency of monitoring activities to be implemented;
- ✓ Monitoring requirements; and
- ✓ Measures of performance (KPI- Key Performance Indicator).

Additionally the scope of RINA's work also includes the preparation of Summary Management Plans that will be used to guide the development of more detailed plans by the Project Company and its Contractors (where applicable). The following summaries are proposed:

- ✓ Labor Management and Working Conditions (including Gender/Gender Based Violence (GBV);
- ✓ Local Recruitment and Training Plan;
- ✓ Occupation Health and Safety Management Plan;
- ✓ Pollution Prevention and Control Management Plan including Spill Prevention and Stormwater Management;
- ✓ Waste Management Plan;
- ✓ Resource Efficiency and Conservation Management Plan;
- ✓ Wastewater Management Plan;
- ✓ Community Health and Safety and Security Management Plan;
- ✓ Emergency Preparedness and Management Program;
- ✓ Covid 19 Management Procedure;
- ✓ Invasive Species Management Plan;
- ✓ Worker Accommodation Management Plan;
- ✓ Stakeholder Engagement Plan;

- ✓ Air quality Management Plan;
- ✓ Noise Management Plan.

These summaries have been extracted from the S-ESMMP Framework and present the information, as a one page summary, as follows:

- ✓ Management objectives;
- ✓ What will need to be addressed in the Detailed Management Plan (in bullet format);
- ✓ Resourcing and training required to support the plan;
- ✓ Monitoring Requirements;
- ✓ Key Performance Indicators; and
- ✓ Reporting on performance.

It is intended that these summaries will provide the basis by which, along with the S-ESMMP Framework, contractors can prepare the necessary more detailed plans.

REFERENCES

Environmental Resources Management, 2021. Terms of Reference for the Supplementary ESIA and Land Review.

Sitthi Logistics, March 2021. Vientiane Logistics Park, Feasibility Report.

LCG and Innogreen, Jan 2020. Final Environmental and Social Impact Assessment Report.

World Bank, 2007. World Bank Group's Environmental Health and Safety General Guidelines.

World Health Organization, 2005. Air Quality Guidelines Global Update, 2005.

ICNIRP, 1998. Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz).

PISECCON (Lao) sole co., ltd, 2021. VLP Project Layout.

Japan International Cooperation, July 2015. Preparatory Survey on VLP in Lao PDR.

BirdLife International (2021) Important Bird Areas factsheet: Mekong Channel near Pakchom. Downloaded from http://www.birdlife.org on 15/12/2021.

BirdLife International (2021) Important Bird Areas factsheet: Mekong River from Luang Prabang to Vientiane. Downloaded from http://www.birdlife.org on 15/12/2021.

Lao Statistics Bureau, 2015. The 4th Population and Housing Census (PHC) 2015

World Bank, 2020. https://data.worldbank.org/indicator/EN.POP.DNST?locations=LA

Minority Rights Group International, 2018. https://minorityrights.org/country/laos/

Lao Statistics Bureau, 2019. Poverty in Lao PDR, the Lao Expenditure and Consumption Survey, 2018-2019.

Union Nations, Office on drugs and Crime, Website Visited in 2022. https://www.unodc.org/unodc/en/alternative-development/laos.html

UNESCO, UNDP, IOM, and UN-Habitat, 2017 https://bangkok.unesco.org/sites/default/files/assets/article/Social%20and%20Human%20Sciences/publications/laos.pdf

Global Green Growth Institute, 2019. Solid waste management in Vientiane 2019, Lao PDR report.

EMEP/EEA, 2016 Air Pollutant Emission Inventory Guidebook.

IFC, 2019. Projects and people

Reuters, 2021. https://www.reuters.com/business/sustainable-business/work-related-deaths-kill-nearly-2-mln-people-year-un-agencies-2021-09-17/

U.S. Embassy in Laos, 2020. https://la.usembassy.gov/wp-content/uploads/sites/85/LAOS-2020-HUMAN-RIGHTS-REPORT.pdf

Understanding Children's Work (UCW) Programme, 2014. https://www.dol.gov/sites/dolgov/files/ILAB/research_file_attachment/GLO%2008%20Lao%20inter-agency.pdf

U.S. Department of State, Bureau of Democracy, Human Rights, and Labor, 2020 https://www.state.gov/reports/2020-country-reports-on-human-rights-practices/laos/

IFC, European Bank for Reconstruction and Development, CDC, 2020. https://www.ifc.org/wps/wcm/connect/62316c4d-6518-4a7b-881d-461c219c46a5/SectorBrief_AddressingGBVH_Construction_July2020.pdf?MOD=AJPERES&CVID=nddoFUn

WHO, 2020. https://covid19.who.int/region/wpro/country/la

UNAIDS, 2020. https://www.unaids.org/en/regionscountries/countries/laopeoplesdemocraticrepublic

International Association For Medical Assistance To Travellers, Consulted in 2021. https://www.iamat.org/country/laos/risk/malaria

IFC, 2020. https://www.ifc.org/wps/wcm/connect/2ab83243-0b50-4d80-a007-f96c4b589634/Tip+Sheet_Interim+Advice_OHS_COVID19_April2020.pdf?MOD=AJPERES&CVID=n7R2Q0P

IFC, 2007. Environmental, Health, and Safety (EHS) Guidelines General EHS Guidelines: Environmental wastewater and ambient water quality

EBRD, 2020. https://www.ebrd.com/covid19-consultation.pdf

Annex A
Relevant Pollution Control Standards

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Air Quality Standards

Article 5 Ambient air quality standard

Ambient air quality standard

Parameters	Symbols	Average	Standard Limit	Unit
Carbon monoxide	CO	1 hour	30	ppm
		8 hours	9	ppm
Nitrogen dioxide	NO_2	1 hour	0.11	ppm
		1 year	0.02	ppm
Sulfur dioxide	SO_2	1 hour	0.13	ppm
		24 hours	0.05	ppm
Total Suspended < 100 micron	TSP	24 hours	0.33	mg/m^3
		1 year	0.10	mg/m^3
Particulate Matter < 10 micron	PM-10	24 hours	0.12	mg/m^3
		1 year	0.05	mg/m^3
Particulate Matter 2.5	PM-2.5	24 hours	0.05	mg/m^3
		1 year	0.015	mg/m^3
Ozone	O_3	1 hour	0.20	mg/m^3
		8 hours	0.14	mg/m^3
Lead	Pb	1 year	0.00015	mg/m^3

Air Pollution Control Standard from industries in general

Parameters	Symbols	Point-sources of air pollution	Air Pollution Standard limit(cannotbe exceeded)		Unit
			Without fuel burning	With fuel burning	
Total Suspended Particulate	TSP	Boiler and Kiln			
		Used oil	Unspecified	240	mg/m^3
		Coal		320	mg/m^3
		Biomass		320	mg/m^3
		Other fuels		320	mg/m^3
		Melting, pressing, pulling of metals (steel	300	240	mg/m^3

		and aluminum)			
		General manufacturing	400	320	mg/m^3
Sulfurdioxide	SO_2	Boiler and kiln			
		Used oil	Unspecified	950	ppm
		Coal		700	ppm
		Biomass		60	ppm
		Other fuels		60	ppm
		General manufacturing	500	Unspecified	ppm
Nitrogendioxide	NO_x as NO2	Boiler and kiln			
		Used oil	Unspecified	200	ppm
		Coal		400	ppm
		Biomass		200	ppm
		Other fuels		200	ppm
		General manufacturing		Unspecified	ppm
Carbonmonoxide	CO	General manufacturing	870	690	ppm
Hydrogen sulfide	H_2S	General manufacturing	140	110	mg/m^3
Hydrogen chloride	HCl	General manufacturing	200	160	mg/m^3
Sulfuric acid	H_2SO_4	Sulfuric acid production	100	unspecified	mg/m^3
Xylene	C_8H_{10}	General manufacturing	870		
Cresol	C_7H_8O	General manufacturing	5		

Tin	Sn	General manufacturing	20	16	mg/m^3
Asenic	As	General manufacturing	20	16	mg/m^3
Copper	Cu	General manufacturing	30	24	mg/m_3
Lead	Pb	General manufacturing	30	24	mg/m_3
Chlorine	Cl	General manufacturing	30	24	mg/m_3
Mercury	Hg	General manufacturing	3	24	mg/m_3

Article 7: Air Pollution Control Standard for Vehicles

Air pollution control standard for new vehicles

Types of Vehicles	Carbonmonoxide (**CO**)	Hydro Carbon (**HC**)	**HC+NO$_x$**	Nitrogen Oxide (**NO$_x$**)	Particulate **Matter (PM)**	**Smoke**	**Unit**
Petrol Vehicle							
Passenger bus	1	0.1	-	0.08	-	-	g/km
Vehicle weight less than 1305 kg	1	0.1	-	0.08	-	-	g/km
Vehicle weight from 1305-1760 kg	1.81	0.13	-	0.1	-	-	g/km
Vehicle weight more than 1760 kg	2.27	0.16	-	0.11	-	-	g/km
Diesel Vehicle							
Passenger bus	0.5	-	0.3	0.25	0.025	-	g/km
Vehicle weight less than 1305 kg	0.5	-	0.3	0.25	0.025	-	g/km
Vehicle weight from 1305-1760 kg	0.63	-	0.39	0.33	0.04	-	g/km
Vehicle weight more than 1760 kg	0.74	-	0.46	0.39	0.06	-	g/km
Heavy Duties Diesel trucks	1.5	0.45	-	3.5	0.02	0.5	g/kwh

Air pollution control standard for used vehicles

Types of Vehicle	Parameters	Standard	Meter	Measurement Methods
Diesel fuelled Vehicles	Black Smoke	50%	Paper filter system	Measuring while vehicle is parking , empty by acceleration at maximum round per minute /RPM
		45%	Opacity Meter system	
		40%	Paper filer system	Measuring while vehicle is running by acceleration at 60% of maximum round per minute / RPM
		35%	Opacity Meter system	
Petrol fuelled Vehicles	Carbonmonoxide	4.5%	Non-Dispersive Infrared Detection	Measuring while vehicle is parking without load
	Hydro Carbon	600 mg/km		
Motorcycle	Carbonmonoxide	.4.5%	Non-Dispersive Infrared Detection	Measuring while vehicle is parking without load
	Hydro Carbon	10000 mg/km		
	White Smoke	30%	Smoke Meter, Full Flow Opacity System	Measuring while vehicle is parking without load by acceleration at 75% of maximum round per minute / RPM

Article 8: Soil Quality Standard

Soil Pollution Control Standard for Other Application Purpose (*non-residential and non-agricultural*)

Parameters	Chemical Formula	Standard	Unit	Analytical Methods
Volatile Organic Compounds (VOCs)				
Benzene	C_6H_6	Not exceed 15	mg/kg	GC/ or GC/MS
Carbon Tetrachloride	CCl_4	Not exceed 5.3	mg/kg	
1,2-Dichloroethane	$CH_2Cl\text{-}CH_2Cl$	Not exceed 7.6	mg/kg	
1.1-Dichloroethylene	$CCl_2{=}CH_2$	Not exceed 1.2	mg/kg	
Cis-1.2-Dichloroethylene	$Cis\text{-}C_2H_2Cl_2$	Not exceed 150	mg/kg	GC/ or GC/MS
Trans-1.2-Dichloroethylene	$Trans - C_2H_2Cl_2$	Not exceed 210	mg/kg	
Dichloromethane	CH_2Cl_2	Not exceed 210	mg/kg	
Ethylbenzene	$C_6H_5\text{-}C_2H_5$	Not exceed 230	mg/kg	
Styrene	$C_6H_5\text{-}CH{=}CH_2$	Not Exceed 1,700	mg/kg	

Tetrachloroethylene	$Cl_2C=CCl_2$	Not exceed 190	mg/kg	
Toluene	$C_6H_5\text{-}CH_3$	Not exceed 520	mg/kg	
Trichloroethylene	$Cl_2C=CHCl$	Not exceed 61	mg/kg	
1,1,1-Trichloroethylene	$Cl_3C\text{-}CH_3$	Not exceed 1,400	mg/kg	
1,1,2-Trichloroethane	$Cl_2CH\text{-}CH_2Cl$	Not exceed 19		
Xylene	*o, m, p* $(CH_3\text{-}C_6H_4\text{-}CH_3)$	Not exceed 210		
Heavy Metals				
Arsenic	As	Not exceed 27	mg/kg	ICP/AES or ICP/MS or AA/Furnace Technique or AA/Gaseous Hydride or AA/Borohydride Reduction
Cadmium compound	Cd	Not exceed 810	mg/kg	ICP/AES or ICP/MS or AA/Direct Aspiration or AA/Furnace Technique

Chromium Hexavalent	Cr^{+6}	Not exceed 640	mg/kg	Co-Precipitation or Colorimetric or Chelation/Extraction
Lead	Pb	Not exceed 750	mg/kg	ICP/AES or ICP/MS or AA/Direct Aspiration or AA/Furnace Technique
Manganes compound	Mn	Not exceed 32.000	mg/kg	
Mercury compound	Hg	Not exceed 610	mg/kg	AA/Cold Vapor Technique
Nickel	Ni	Not exceed 41,000	mg/kg	ICP/AES or ICP/MS or AA/Direct Aspiration or AA/Furnace Technique
Selenium	Se	Not exceed 10,000	mg/kg	
Pesticides				
Atrazine	$C_8H_{14}ClN_5$	Not exceed 110	mg/kg	GC
Chlordane	$C_{10}H_6Cl_8$	Not exceed 110	mg/kg	GC/MS
2,4-Dichlorophenoxyacetic acid	2,4-D ($C_{14}H_9Cl_5$)	Not exceed 12,000	mg/kg	GC or HPLC or TE/GC/MS
Dichlorodiphenyltrichloroethane	DDT ($C_{14}H_9Cl_5$)	Not exceed 120	mg/kg	

Dieldrin	$C_{12}H_8Cl_6O$	Not exceed 1.5	mg/kg	GC or GC/MS
Heptachlor	$C_{10}H_5Cl_7$	Not exceed 5.5	mg/kg	
Heptachlor epoxide	$C_{10}H_5Cl_7O$	Not exceed 2.7	mg/kg	
Lindane	$ClCH(CHCl)_4CHCl$ or $C_6H_6Cl_6$	Not exceed 29	mg/kg	
Pentachlorophenol	Cl_5C_6OH	Not exceed 110	mg/kg	GC or GC/MS or GC/FT-IR
Other Chemicals				
Benzo (A) pyrene	$C_{20}H_{12}$	Not exceed 2,9	mg/kg	GC/MS or TE/GC/MS or GC/FT-IR
Cyanide compound	CN^-	Not exceed 35	mg/kg	Distillation or Total Amenable Cyanide (Automated Chlorimetric, with off-line Distillation) or Cyanide Extraction Procedure for Solids and Oils
Polychlorbiphenyls	PCBs	Not exceed 10	mg/kg	GC
Vinyl Chloride	$CH_2=CHCl$	Not exceed 8.3	mg/kg	Purge and Trap GC or Purge and Trap GC/MS

Article 10 Surface Water Quality Standards

Parameters	Symbols	Standards for each quality criteria					Unit	Analytical Methods
		1	2	3	4	5		
Color, Oder and Taste	none	n	n'	n'	n'	none	unspecified	unspecified
Temperature	t °C	n	n'	n'	n'	unspecified	°C	Thermometer
Potential of Hydrogen	pH	6-8	6-8	5-9	5-9	unspecified	unspecified	Electrometric pH Meter
Dissolved Oxygen	DO	>7	6.0	4.0	2.0	<2	mg/L	Azide Modification
Electro-conductivity	Ec	*<500*	≤1000	≤2000	≤4000	>4000	µS/cm	Ec meter
Chemical oxygen demand	COD	>5	5 - 7	7-10	10-12	<12	mg/L	Potassium Dichlormate

								Digestion; or Closed Reflux
Total coliform bacteria	un specified	n	5,000	20,000	unspecified	unspecified	MPN/100 ml	Multiple Tube Fermentation Technique
Fecal coliform bacteria	unspecified	n	1,000	4,000	unspecified	unspecified	MPN/100 ml	Multiple Tube Fermentation Technique
Total Suspended Solid	TSS	>10	≥25	≥40	≥60	<60	mg/L	Glass Fiber Filter Disc
Phosphate	PO_4	>0.1	0.5	1	2	<2	mg/L	Ascorbic acid
Ammonium ion	NH_4^+	>0.5	≥1.5	≥3	≥4	<4	mg/L	Kjeldahl
Nitrate-Nitrogen	NO_3-N	n	0.5			unspecified	mg/L	Cadmium Reduction
Parameters	**Symbols**	**Standards of each category**					**Unit**	**Analytical Methods**
		1	**2**	**3**	**4**	**5**		
Ammonia-Nitrogen	NH_3-N	n	0.5			unspecified	mg/L	Distillation Nesslerization
Phenol	C_6H_5OH	n	0.005			unspecified	mg/L	Distillation, 4-Amino antipyrene
Copper	Cu	n	1.5			unspecified	mg/L	
Nickel	Ni	n	0.1			unspecified	mg/L	

Manganese	Mn	n	1.0	unspecified	mg/L	AA-Direct Aspiration
Zinc	Zn	n	1.0	unspecified	mg/L	
Cadmium	Cd	n	0.003	unspecified	mg/L	
Chromium Hexavalent	Cr^{+6}	n	0.05	unspecified	mg/L	
Lead	Pb	n	0.01	unspecified	mg/L	
Mercury	Hg	n	0.001	unspecified	mg/L	AA-Cold Vapour Technique
Asenic	As	n	0.01	unspecified	mg/L	AA-Direct Aspiration, ICP
Cyanide	CN^-	n	0.07	unspecified	mg/L	
Radioactive -Alpha -Beta	 -α -β	n	 0.1 1.0	unspecified	Becqurel/L	GC
Organochlorine pesticide		n	0.05	unspecified	mg/L	
Dichlorodiphenyltrichloroethane	DDT	n	1.0	unspecified	µg/L	

Alpha-Benzene hexachloride	α-BHC ($C_6H_6Cl_6$)	n	0.02	unspecified	µg/L	GC
Dieldrin	$C_{12}H_8Cl_6O$	n	0.1	unspecified	µg/L	
Aldrin	$C_{12}H_8Cl_6$	n	0.1	unspecified	µg/L	
Heptachlor and heptachlor epoxide	$C_{10}H_2Cl_7$ and $C_{10}H_5Cl_7O$	n	0.2	unspecified	µg/L	
Endrin	$C_{12}H_2Cl_6O$	n		unspecified	µg/L	

Note:

Category 1: Water source with naturally good quality, without production process or contamination with any chemical and free of waste water from any kind of activity.

Category 2: Water source utilizing for consumption which has undergone disinfection process. This water category is suitable for conservation for aquatic animals, fisheries, water sports etc….

Category 3: Water source for consumption that requires disinfection. This water category is suitable for agriculture, livestock etc…

Category 4: Water source for consumption that requires disinfection. This water category is suitable for industrial purpose and catchment for receive waste water treatment.

Category 5: Water source utilizing for water communication and transport, suitable for utilizing as catchment and treatment of urban waste water.

Standards for Ambient Groundwater

Parameters	Symbols	Maximum Standard	Unit	Method of Measurement
Volatile Organic Compounds (VOCs)				
Benzene	C_6H_6	0.005	mg/L	Purge and Trap GC or Purge and Trap GC/
Carbon Tetrachloride	CCl_4	0.005	mg/L	
1,2-Dichloroethane	$CH_2Cl\text{-}CH_2Cl$	0.005	mg/L	
1,2-Dichloroethylene	$CCi2{=}CH_2$	0.007	mg/L	
Cis-1,1-Dichloroethylene	$Cis\text{-}C_2H_2Cl_2$	0.070	mg/L	
Trans-1.1-Dichloroethylene	$Trans\text{-}C_2H_2Cl_2$	0.1	mg/L	
Dichloromethane	CH_2Cl_2	0.005	mg/L	
Ethylenebenzene	$C_6H_5\text{-}C_2H_5$	0.7	mg/L	
Styrene	$C_6H_5\text{-}CH{=}CH_2$	0.1	mg/L	
Tetrachloroethylene	$Cl_2C{=}CCl_2$	0.005	mg/L	
Toluene	$C_6H_5\text{-}CH_3$	1	mg/L	
Trichloroethylene	$Cl_2C{=}CHCl$	0.005	mg/L	
1,1,1-Trichloroethane	$Cl_3C\text{-}CH_3$	0.2	mg/L	
1,1,2-Trichloroethane	$Cl_2CH\text{-}CH_2Cl$	0.005	mg/L	
Xylene	*o, m, p* $(CH_3\text{-}C_6H_4\text{-}CH_3)$	10	mg/L	
Lead	Pb	0.01	mg/L	

Manganese	Mn	0.5	mg/L	AA-Direct Aspiration or ICP/AES
Nickel	Ni	0.02	mg/L	
Zinc	Zn	5	mg/L	
Arsenic	As	0.01	mg/L	AA-Hydride Generation or ICP/Plasma Emission Spectroscopy
Selenium	Se	0.01	mg/L	
Mercury	Hg	0.001	mg/L	AA-ColdVapour/Plasma Emission Spectroscopy
Other Chemicals				
Benzo (A) pyrene	$C_{20}H_{12}$	0.0002	mg/L	Liquid-Liquid Extraction Chromatography or Liquid-Liquid Extraction Gas Chromatography/Mass Spectrometry
Cyanide	CN^-	0.07	mg/L	Pyridine Barbituric Acid or Colorimetric or Iron Chromatography
Polychlorophenyls	PCBs	0.0005	mg/L	Liquid-Liquid Extraction Gas Chromatography
Vinyl Chloride	CH_2=CHCl	0.002	mg/L	Purge and Trap Gas Chromatography or Purge and Trap Gas Chromatography/Mass Spectrometry
Heavy Metals				
Cadmium	Cd	0.003	mg/L	AA-Direct Aspiration or ICP/AES
Chromium Hexavalent	Cr^{6+}	0.05	mg/L	

Copper	Cu	1.5	mg/L	

Water Pollution Standards for General Industries

Parameter	**Symbol**	**Maximum Standard allowed**	**Unit**	**Method of Measurement**
Potential of Hydrogen	pH	6-8.5	-	pH Meter
Total Dissolved	TDS	Not more than 2,500 mg/L according to the type of industry and receiver but not more than 5,000 mg/L	mg/L	Dry evaporation at temperature 103-105ºC, 1 hour
Total Suspended Solid	TSS	Not more than 50 mg/L according to the type of industry and receiver but not more than 150 mg/L	mg/L	Glass Fiber Filter Disc
Temperature	t	Not more than 40	ºC	Temperature Meter

Color and Odor	-	Must not occurred	-	General
Hydrogen Sulfide	H_2S	Not more than 1.0	mg/L	Titration
Cyanide	CN^-	Not more than 0.2	mg/L	Distillation and Pyridine Barbituric Weight
Fat, Oil and Grease	FOG	Not more than 0.5 mg/L according to the type of industry and receiver but not more than 15.0 mg/L	mg/L	Solvent Extraction by Weight
Formaldehyde	CH_2O	Not more than 1.0	mg/L	Spectrophotometry
Phenol	C_6H_5OH	Not more than 1.0	mg/L	Distrillation and Aminoantipyrine Method 4
Chlorine	Cl^-	Not more than 1.0	mg/L	Lodometric Method
Pesticide	-	Must not have	mg/L	GC
Biological Oxygen Demand 5 Days	BOD_5	Not more than 30 mg/L according to the type of industry and receiver but not more than 60 mg/L	mg/L	Azide Modification at 20°C, 5 days
Total Nitrogen	TKN	Not more than 100 mg/L according to the type of industry and receiver but not more than 200 mg/L	mg/L	Kjeldahl

Chemical Oxygen Demand	COD	Not more than 120 mg/L according to the type of industry and receiver but not more than 400 mg/L	mg/L	Potassium Dichromate Digestion; Open Reflex or Closed Reflux
Heavy metals				
Zinc	Zn	Not more than 5.0	mg/L	AA/AES; ICP
Chromium Hexavalent	Cr^{+6}	Not more than 0.25	mg/L	
Chromium Trivalent	Cr^{+3}	Not more than 0.75	mg/L	
Copper	Cu	Not more than 2.0	mg/L	
Cadmium	Cd	Not more than 0.03	mg/L	
Barium	Ba	Not more than 1.0	mg/L	
Lead	Pb	Not more than 0.2	mg/L	
Nickel	Ni	Not more than 1.0	mg/L	
Manganese	Mn	Not more than 5.0	mg/L	
Arsenic	As	Not more than 0.25	mg/L	AA-Hydride Generation or ICP
Selenium	Se	Not more than 0.02	mg/L	
Mercury	Hg	Not more than 0.005	mg/L	AA-Cold Vapour Technique

Water Pollution Control Standards for Buildings

Parameter	Symbol	Maximum permit for each type					Unit	Method of Measurement
		A	B	C	D	E		
Potential of Hydrogen	pH	5.5-8.5	5.5-8.5	5.5-8.5	5.5-8.5	5.5-8.5	-	pH Meter
Biological Oxygen Demand 5 Days	BOD_5	20	30	40	50	60	mg/L	Azide Modification at 20^{oC}, 5 days
Total Suspended Solid	TSS	30	40	50	50	60	mg/L	Glass Fiber Filter Disc
Sediment Solid	SS	0.5	0.5	0.5	0.5	-	mg/L	Imhoff Cone 1,000 cm^3 1hour
Total Dissolved Solid	TDS	500	500	500	500	-	mg/L	Dry Evaporation 103-105^{oC} 1 hour
Sulfide	S^{2-}	1.0	1.0	3.0	4.0	-	mg/L	Titration
Nitrogen	TKN	35	35	40	40	-	mg/L	Kjeldahor colormatric
Fat, Oil and Grease	FOG	20	20	20	20	100	mg/L	Solvent Extraction by Weight

Water Pollution Control Standards for Toilet

Parameter	Symbol	Standard	Unit	Method of Measurement
Potential of Hydrogen	pH	6-9	-	pH Meter
Biological Oxygen Demand 5 Days	BOD_5	30	mg/L	Azide Modification at 20^{oC}, 5 days
Chemical Oxygen Demand	COD	125	mg/L	Potassium Dichromate Digestion; Open Reflux or Close Reflux
Total Suspended Solid	TSS	50	mg/L	Glass Fiber Filter Disc
Total Nitrogen	TKN	10	mg/L	Kjeldahl
Phenol	C_6H_5OH		mg/L	Distillation and Aminoantipyrine Method 4
Fat, Oil and Grease	FOG	5.0	mg/L	Solvent Extraction by Weight
Total Dissolved Solid	TDS	400	MPN/ml	Dry Evaporation $103\text{-}105^{oC}$ 1 hour

Water Pollution Control Standard for Public Drainage

Parameter	Symbol	Standard	Unit	Method of Measurement
Potential of Hydrogen	pH	5.5-8.5	-	pH Meter
Electro-Conductivity	Ec	2,000	µS/cm	
Total Dissolved Solid	TDS	1,200	mg/L	Dry Evaporation 103-105^{oC} 1 hour
Biological Oxygen Demand 5 Days	BOD_5	30	mg/L	Azide Modification at 20^{oC}, 5 days
Total Suspended Solid	TSS	30	mg/L	Glass Fiber Filter Disc
Per-manganese	MnO_4^-	6.0	mg/L	Titration
Hydrogen Sulfide	H_2S	1.0	mg/L	Titration
Cyanide	CN^-	0.2	mg/L	Distillation and Pyridine Barbituric Acid

Fat, Oil and Grease	FOG	5.0	mg/L	Solvent Extraction by Weight
Formaldehyde	CH_2O	1.0	mg/L	Spectrophotometry
Phenol and Cresol	C_6H_5OU	1.0	mg/L	Distillation and Aminoantipyrine
Resident Chlorine	Cl^-	1.0	mg/L	Lodometric Method
Radioactive	-	none	mg/L	General
Color and Odor	-	Cannot be observed	mg/L	General
Tar	-	none	mg/L	General
Heavy Metals				
Zinc	Zn	5.0	mg/L	Atomic Absorption (AA)
Chromium Hexavalent	Cr^{+6}	0.3		
Arsenic	As	0.25		
Copper	Cu	1.0		
Mercury	Hg	0.005		
Cadmium	Cd	0.03		
Selenium	Se	0.02		
Lead	Pb	0.1		
Nickel	Ni	0.2		
Manganese	Mn	0.5		

Water Pollution Control Standard for Car Care and Petrol Station

Parameter	Symbol	Duration and Maximum permit	Unit	Method of Measurement
Potential of Hydrogen	pH	5.5-8.5	mg/L	pH Meter
Chemical Oxygen Demand	COD	Not exceed 200	mg/L	Potassium Dichromate Digestion
Total Suspended Solid	TSS	Not exceed 60	mg/L	Glass Fiber Filter Disc
Fat, Oil and Grease	FOG	Not exceed 15	mg/L	Extract with solvent after solvent evaporation the oil and grease content

Article 15 Ambient Noise Standards

Standards	Method of Measuring the Volume
Highest noise (L_{max}) not exceed 115 dB (A)	Measure volume (L_{eq}) during the changes of the volume
24 hours average volume ($L_{eq}24$) not exceed 70 dB (A)	Measure volume (L_{eq}) continuously

Interference Noise Control Standard

Volume standard	**Method of Measuring Volume**
Volume differences in interfered duration with basic volume (L_{90}) not exceed 10 dB (A)	If the duration of Interfered noise is not exceeded 1 hour, use 1 hour volume measurement (L_{eq} 1 hr)
	If the duration of Interfered noise is exceeded 1 hour, conduct volume measuring in the place
	If the duration of interfered noise is not continued in 1 hour, conduct the volume measuring for 1 hour (L_{eq} 1 hour)
	For the place that need the quietness such as: hospital, school and gexceednment office and etc. or in duration from 22:00 to 6:00, conduct the 5 mins average volume (L_{eq} 5 min) and plus 3 dB (A)

Noise Control Standards for Engines and Vehicles

Standards	**Method of Measuring**
1. Engine for maritime	
Measure 0.5m from the tip pipe, not exceed 100 dB (A)	Diesel engine: accelerate until the maximum round of the engine per minutes
Test for 2 times by using the highest value. If there is exceeded 2 dB (A) differences, redo the test	Benzene engine: accelerates ¾ of the maximum round of the engine
2. Engine for general vehicle	
Measure 7.5m from the tip pipe, not exceed 85 dB (A)	Diesel engine: accelerate until the maximum round of the engine per minutes
Measure 0.5m from the tip pipe, not exceed 100 dB (A)	Benzene engine: accelerates 3/4 of the maximum round of the engine
Engine for motorbike	
Measure 0.5m from the tip pipe, not exceed 95 dB (A)	accelerates 3/4 of the maximum round of the engine, if the engine round is not exceeded 5,000 round per minute
	accelerates 1/3 of the maximum round of the engine, if the engine round is exceeded 5,000 round per minute

Noise Control Standards for Mining Activities and Rock Explosion

Standard	**Volume measuring**
The Maximum volume must not exceed 115 dB (A)	Maximum volume measuring is Sound pressure Level (SPL) during rock explosion
Continued volume (L_{eq}) for 8 hours not exceed 75 dB (A)	Average 8 hours volume measuring conducted measuring standard during 8 hours of stone crushing

Continued volume (L_{eq}) for 8 hours not exceed 70 dB (A)	Average 24 hours volume measuring conducted measuring standard during 24 hours

Vibration Control Standards for Engines and Vehicles

Frequency (Hertz)	Velocity (mm/s)	Displacement (mm)
1	4.7	0.75
2	9.4	0.75
3	12.7	0.67
4	12.7	0.51
5	12.7	0.40
6	12.7	0.34
7	12.7	0.29
8	12.7	0.25
9	12.7	0.23
10	12.7	0.23
11	12.7	0.20
12	13.8	0.20
13	15.1	0.20
14	16.3	0.20
15	17.6	0.20
16	18.8	0.20
17	20.1	0.20
18	21.4	0.20
19	22.6	0.20

20	23.9	0.20
21	25.1	0.20
22	26.4	0.20
23	27.6	0.20
24	28.9	0.20
25	30.2	0.20
26	31.4	0.20
27	32.7	0.20
28	33.9	0.20
28	35.2	0.20
30	36.4	0.20
31	37.7	0.20
32	39.0	0.20
33	40.2	0.20
34	41.5	0.20
35	42.7	0.20
36	44.0	0.20
37	45.2	0.20
38	46.5	0.20
39	47.8	0.20
40	50.8	0.20

Method of Measuring Vibration

Measuring equipment installation	**Method of measuring**
Install the vibration measuring equipment on the ground	Use object-tools to stabilize vibration measuring equipment and without moving
Install the vibration measuring equipment on the concrete ground outside the building	Measure on the concrete located in the same level as the ground which is not higher than 0.5 m from the ground and stabilize the equipment from moving.

Annex B

S-ESMMP FRAMEWORK

Doc. No. P0026924-1-H3 Rev. 3 – March 2022

SUPPLEMENTARY ESMMP FRAMEWORK

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LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

CFS	Container Freight Station
CHS	Community Health and Safety
CMC	Change Management Coordinator
CY	Container Yard
E&S	Environmental and Social
ECHs	Empty Container Handlers
EHS	Environmental Health and Safety
ERM	Environmental Resources Management
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMS	Environmental and Social Management System
GBV	Gender Based Violence
HR	Human Resources
HSE	Health, Safety and Environmental
HSESQ	Health, Safety, Environment, Social and Quality
HSSE	Health, safety, security and environment
IFC	International Finance Corporation
KPI	Key Performance Indicator
LCG	Lao Consulting Group Limited
LRP	Livelihood Restoration Plan
MONRE	Ministry of Natural Resources and Environment
MP	Management Plan
MS	Management System
OHS	Occupational Health and Safety
PAPs	Project-Affected Persons
PDR	People's Democratic Republic
PPE	Personal Protective Equipment
PS	Performance Standard
RTGs	Rubber Tyred Gantries Cranes
SEP	Stakeholder Engagement Plan
SPV	Special Purpose Vehicle
SSHEC	Safety Security Health Environment and Community
S-ESIA	Supplementary Environmental and Social Impact Assessment
S-ESMMP	Supplementary Environmental and Social Management and Monitoring Plan
VLP	Vientiane Logistics Park Campany Limited
WB	World Bank

1 INTRODUCTION

1.1 OVERVIEW

Lao People's Democratic Republic (Lao PDR) is confronted with various obstacles and challenges in transport services and still below the international standard in term of efficiency, reliability and cost due to the fact that the required infrastructure has been developed insufficiently. A Transport Management Policy was developed in Laos in 2016 for the implementation of three strategic plans, including transform Laos from a “land locked country” into a “land linked country”. To achieve this goal, the government has facilitated the Dry Port development to be the international trade gateway which is a fundamental structure for the integration of road and railway transport to a seaport and to be the integration and distribution centre for domestic destination including inventory and transshipment facilities as well as customs clearance service. The location of the Project in Lao PDR presents an opportunity for the shortest route from East to West compared with other cross-borders and is intended to be the main transport linkage route from China to Thailand and Vung-Ang port in Vietnam crossing Lao PDR.

The Government and Sitthi Logistic (Lao) Limited Company have collaborated on the Investment and Development of Thanaleng Dry Port and Vientiane Logistics Park Project. Vientiane Logistics Park Company Limited (“VLP”, “sponsor”) has been established as a Special Purpose Vehicle (SPV), registered for the development of Thanaleng Dry Port (the “Dry Port”) and Vientiane Logistics Park Project (the “Logistics Park”) in Hadxayfong and Saysettha District, Vientiane, Lao People's Democratic Republic. Both the Dry Port and Logistics Park cover an area of 382 hectares, 55 ha of these being for the Dry Port development.

An Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management and Monitoring Plan (ESMMP) was prepared for the Dry Port by the Lao Consulting Group Limited (LCG) and Innogreen Engineering Company and was submitted to Ministry of Natural Resources and Environment (MONRE) in January 2020. The Project received authorization on 19th March 2020.

Following a review of the Project by the International Finance Corporation (IFC), the Lender for the Project, and a third-party environmental and social consultant (Environmental Resources Management, or “ERM”) several gaps were identified and the need for a Supplementary Environmental and Social Impact Assessment (S-ESIA) was identified to be prepared with the aim of addressing the gaps.

This document is the Draft Supplementary Environmental and Social Management and Monitoring Plan Framework (S-ESMMP Framework) that has been prepared to support the S-ESIA (Doc. No. P0026924-H3 Rev. 0) for the Thanaleng Dry Port.

The Construction Phase of the Project has reached completion. Decommissioning of the facility is anticipated, at the earliest between 2040 and 2050 and as such it is premature to prepare a detailed Decommissioning Management Plan. This S-ESMMP has therefore been prepared to provide a framework for managing environmental and social issues associated with the Dry Port during the operational phase of the project. It has been informed by:

- ✓ the commitments included and approved in the existing ESMMP;
- ✓ existing procedures and management plans that have been prepared by VLP;
- ✓ the conditions of the environmental permit issued by MONROE;
- ✓ additional mitigation requirements identified through the S-ESIA Process.

as such it replaces the original ESMP already in place and prepared by Lao Consulting Group Company Ltd. (LCG) and Innogreen. It is intended to support the development of more detailed environmental and social management plans (to be prepared by the Project Company) and identifies these.

The Draft S-ESMMP has been prepared in the context that all environmental and social management documents will be integrated into a single and cohesive management structure, the Company Environmental and Social Management Plan (ESMP), as part of the Project Health, Safety, Environmental, Social and Quality Management System (HSESQ-MS) of the Company. The implementation of specific required environmental and social management and monitoring actions throughout the construction, operation and decommissioning of the Project is ensured through the development of a series of specific Management Plans (MPs) that are part of the overall ESMP.

1.2 VLP HSESQ MANAGEMENT SYSTEM

VLP is developing an integrated HSESQ-MS aligned with the requirements of ISO 9001 and ISO 14001 while ISO 45001 is already integrated.

The Project HSESQ-MS will be built upon a set of policies developed by the Project Company management and on a number of requirements defined by external sources, specifically:

- ✓ laws and regulations of Lao;
- ✓ ISO 14001, ISO 9001 and ISO 45001 standards for environmental, quality and safety management systems;
- ✓ relevant international conventions; and
- ✓ IFI policies, standards and guidelines including IFC Performance Standard (PS) (see Chapter 3 for details).

At the time of this document preparation, the Project Company has prepared and adopted several policies and procedures for the Operational Phase, including:

- ✓ Occupational Health and Safety Policy and Objectives;
- ✓ Safety Security Health Environment and Community (SSHEC) Policy.

In addition, the following management plans and procedures are currently in place:

- ✓ Solid Waste Monitoring and Management Plan;
- ✓ Waste Water and Sewage Monitoring Plan;
- ✓ Water Quality Monitoring and Management Plan;
- ✓ Noise and Vibration Management Plan;
- ✓ Contractor Management Framework;
- ✓ Fire Fighting Drill & Fire Drill Plan;
- ✓ Emergency Preparedness Plan;
- ✓ Environmental Hazard Identification (work instruction);
- ✓ Oil spillage handling procedure;
- ✓ General work permit;
- ✓ Environmental Management Procedure;
- ✓ Procedure on Contractor Requirements;
- ✓ Employee Handbook;
- ✓ Waste Handling Procedure;
- ✓ Waste Disposal Work Instruction;
- ✓ Workplace Complaints & Grievance Procedure.

The ESMMP developed by LCG & Innogreen included the following management and monitoring plans for the Operation Phase:

- ✓ Resettlement Action Plan;
- ✓ Water Quality Management;
- ✓ Air pollution and Quality Management;
- ✓ Noise and Vibration Management;
- ✓ Entry-Exit Traffic in the Project Area Management;
- ✓ Health and Safety Management.

The Project Company will update and upgrade the existing MPs to include mitigations and monitoring measures identified in the S-ESIA for the Project, with the aim of being fully compliant with the Project applicable standards. Where missing new plans will be developed by the Project Company and should be read in conjunction with these other HSESQ-MS elements. Each MP that forms part of the HSESQ-MS will be developed to consolidate and specify all relevant topic- and activity-specific commitments, actions and legal/permit requirements, including:

- ✓ mitigation measures and management actions to address potential risks and impacts identified in the ESIA and S-ESIA;
- ✓ key environmental and social monitoring requirements;
- ✓ roles and responsibilities for management and monitoring measures;
- ✓ key competency and training requirements;

- ✓ Key Performance Indicators (KPIs) for assessing the MPs performance; and
- ✓ additional verification procedures to ensure that the objectives of the plan are met.

In addition to the above, as part of the scope of work for the S-ESIA, RINA has developed a Stakeholder Engagement Plan (SEP) which outlines the approach to be taken to identifying and interacting with affected parties. This includes a Community Grievance Mechanism Procedure to enable concerns regarding the Project to be raised and addressed.

As outlined earlier, each MP will outline actions to be undertaken bythe Project Company.

RINA has been requested as part of the scope of the S-ESIA to also develop summary plans to guide the development or update of more detailed management plans. The following summaries have been prepared as part of the scope of this study:

- ✓ Labor Management and Working Conditions (including Gender/Gender Based Violence (GBV);
- ✓ Local Recruitment and Training Plan;
- ✓ Occupation Health and Safety Management Plan and Procedures;
- ✓ ESHS Training Management Prodecure;
- ✓ Traffic and Transportation Management Plan;
- ✓ Pollution Prevention and Control Management Plan Waste Minimization and Resource Efficiency and Conservation Management Plan;
- ✓ Waste Management Plan (for hazardous and non-hazardous waste);
- ✓ Water Conservation / Minimization Plan;
- ✓ Wastewater Management Plan;
- ✓ Community Health and Safety Management Plan;
- ✓ Influx Management Plan;
- ✓ Security Risk Assessment and Management Plan (including Gender/GBV);
- ✓ Spill Prevention and Response Plan;
- ✓ Emergency Preparedness and Management Program Contractor E&S Management Plan (including Gender and GBV).

2 PROJECT DESCRIPTION

The Thanaleng Dry Port (the Project), located in Vientiane, the capital of Laos, is to be developed by Sitthi Logistics ("STL"), and it is part of a planned comprehensive logistics platform (Vientiane Logistic Park – VLP) for domestic and multi-national companies operating in the region. The Vientiane Logistics Park comprises two main components:

- ✓ a dry port ("Thanaleng Dry Port") and;
- ✓ an export processing zone, logistics park, distribution centres, commercial zone and tank farm.

Granted under a 50 year concession by the Lao government in early 2019, the total area to be developed for VLP is approximately 382 hectares in total.

The area of the Dry Port (object of the present report) is 55 hectares. The Dry Port itself comprises of three main functional areas:

- ✓ truck arrivals/departures area (Access Road or Road B);
- ✓ customs and container freight station (Office Zone and CFS); and
- ✓ container yard area (CY).

The main functional areas of the Project are presented in the figure below.

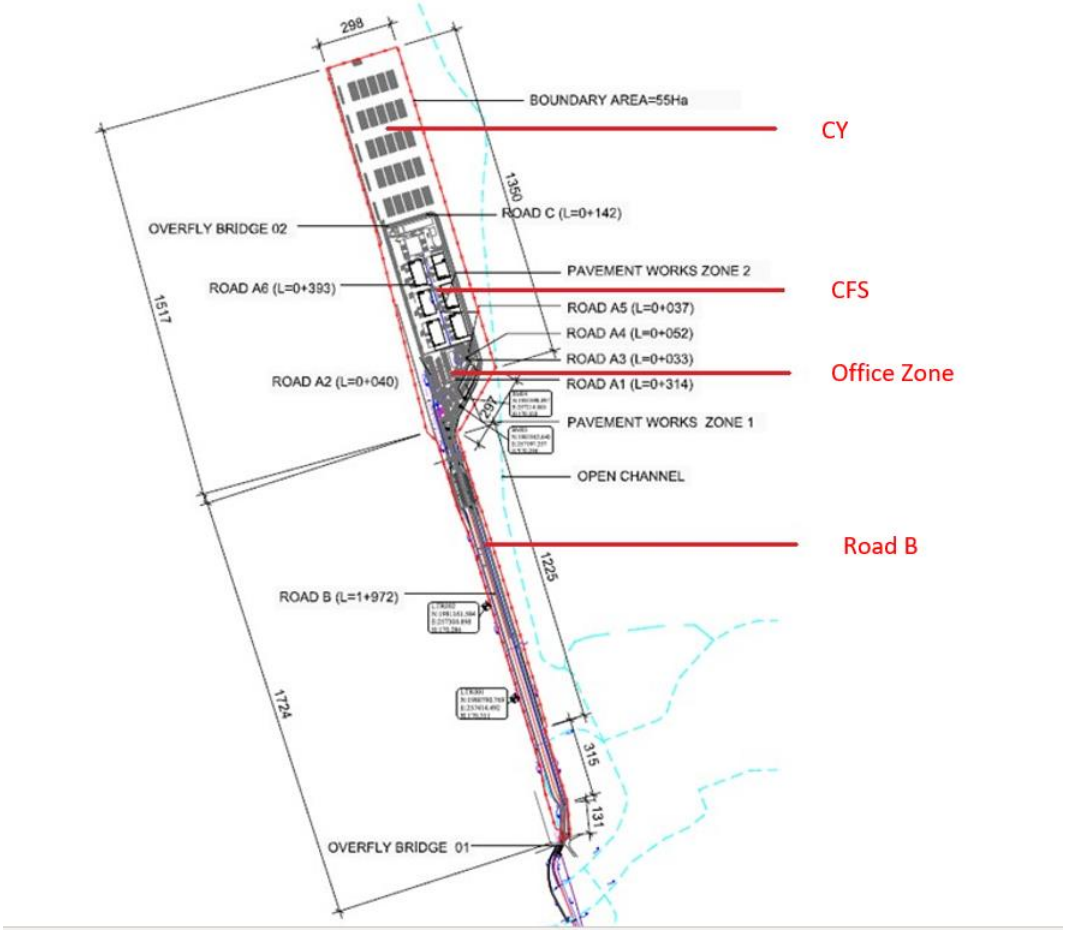


Figure 2.1: General Project Layout

In addition, infrastructures and services supporting the Dry Port facility are:

- ✓ an access road (Road A);
- ✓ 22 kV transmission line (1.6 km connecting the Dong Poxy substation with the Project);

- ✓ Municipal water supply;
- ✓ Septic tanks for the construction and operational phases of the Project;
- ✓ Waste storage and removal for both phase of the Project.

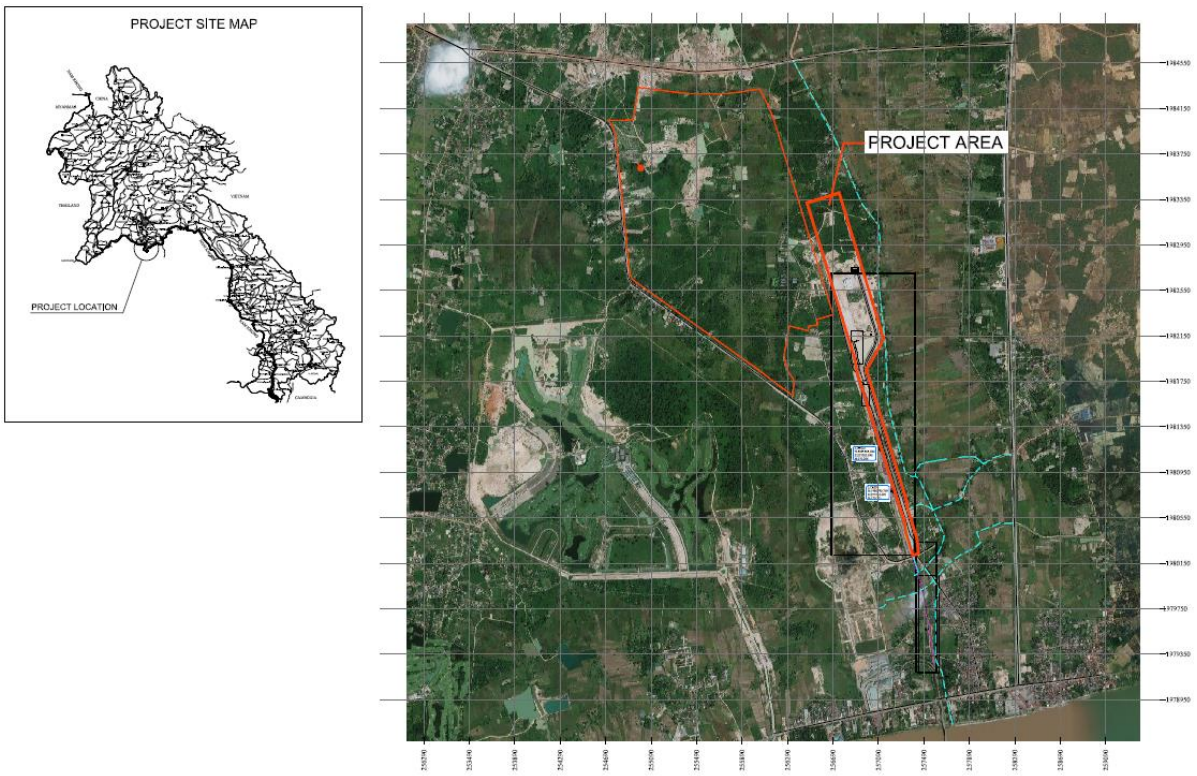
From the list above, none of this additional infrastructure is considered to be an associated facility as:

- ✓ Road A which is a link road that has been developed between Friendship Bridge and the Access Road for the Dry Port is financed by the Project;
- ✓ The 22 kV transmission line to provide electricity to the Dry Port was developed in advance of the project development with the intention of supporting the pre-existing Container Yard.

During the Operation Phase of the Project the number of permanent personnel will be approximately 200 people. It is estimated by VLP that there will 2061 inbound trucks monthly for the first five years of operation of the Dry Port, about 2/3 of which are trailers.

2.1 Project Location

The Thanaleng Dry Port VLP is located approximately 15 km east from downtown Vientiane. To its immediate south is the Nong Khai Municipality of Thailand and as such Thanaleng has traditionally been a strategic crossing point between the two countries. In 1993, Friendship Bridge was developed between the two countries holding a strategic position as an international cross border point. The main gate of the Dry Port is located approximately 3.2 km north of the Mekong river and Friendship Bridge.



Source: Project Layout. 2021. Realised by PISECCON (Lao) sole co., ltd for VLP

Figure 2.2: VLP Project Location

Main transportation routes in the vicinity of the Dry Port are the Vientiane 450 year road which runs between the border and Vientiane Capital, and Thadeua Road running to the south of the site along the Mekong River, also linking up with Friendship Bridge. The Dry Port itself will be connected with the main existing road network via a new connection road (approximately 1 Km length) joining the Dry Port access road and Thadeua Road.

The Project is adjacent to the villages of Dongphosy, Dongphonhae, Thanaleng and Nakhuaytai. The villages are situated as follows from the Dry Port:

Table 2.1: Distance between the Dry Port and surrounding villages

Distance in Km	From Dry Port center to village center	From Dry Port outer boundaries to Village Center	From Dry Port outer boundaries to Village Outer Boundary	Dry Port outer boundaries Direction
Dongphosy	3.00	1.3	0.30	South
Dongphonhae	1.50	1.40	0.80	East
Thanaleng	3.5	1.50	1.2	South
Nakhuaytai	4.50	2.80	1.70	North

The Dry Port was developed around the existing Container Yard (CY) which was realized following the inauguration of the Thanaleng railway station (2009) that became the first railway station in Laos PDR. The Thanaleng railway station is located on the western side of the access road approximately 1 Km South of the main gate of the Dry Port.

On the north-western boundary of the Dry Port is the proposed Vientiane Logistic Park (VLP) which is seen as a supporting development to the Dry Port.

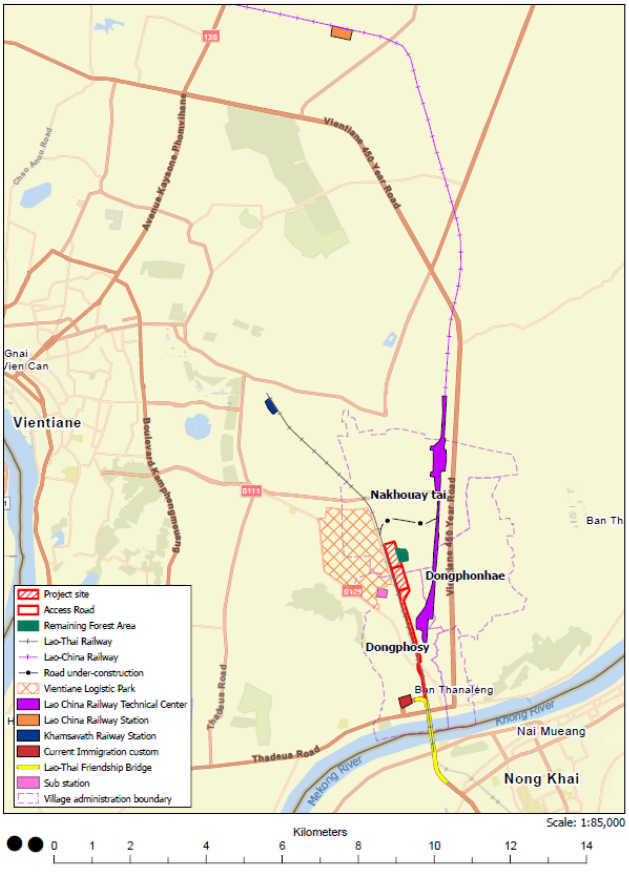


Figure 2.3: Project Location Relative to Surrounding Land uses

2.2 Dry Port Infrastructure and Layout

The layout of the Dry Port has been developed to support the functions that it is offering:

- ✓ Providing connectivity between the Lao-China railway and Thailand in terms of import-export and facilitating goods transport through Thailand, China and Vietnam;
- ✓ Consolidate cargos to service the provinces in the northern and central parts of Laos;
- ✓ Facilitate the registration of cargo and offer a handling service, and
- ✓ Allow for cross docking and packaging.

The Thanaleng Dry Port area, is thus divided into the following functional areas:

- ✓ Road B or Access Road – the main access road (in and out) of the Dry Port which is approximately 1.7 km in length and includes a fly-over bridge above the existing Lao-Thai railway. The access road provides domestic lanes (for trucks delivering and receiving cargo for Laos based clients) and international lanes (for trucks travelling to and from Thailand);
- ✓ Internal/Office Zone – this area serves and administrative and support function. It includes the Main Gate, Offices (including custom offices), 5 Shophouses, Canteen and 2 Hotels. The customs facility includes warehouses for physical inspections of containers and storage space for confiscated goods;
- ✓ Bonded Zone/Container Feight Station (CFS) – the purpose of this area is for the consolidation and deconsolidation of freight shipments. This area includes 6 warehouse buildings (5,000 m^2 each), an existing Warehouse, Railway operation office, Internal roads and Parking areas and a second fly-over bridge joining the Dry Port with the planned Logistic Park;
- ✓ Container Yard/ Rubber Tyred Gantries Cranes (RTGs) container yard – a new paved area (16.7 ha).Tthis area is where all laden containers, whether arriving by truck or by train, are temporarily stored before being collected for delivery to the end client. All containers are handled using rubber tyred gantries cranes. Empty containers are stored in blocks and handled using empty container handlers (ECHs).

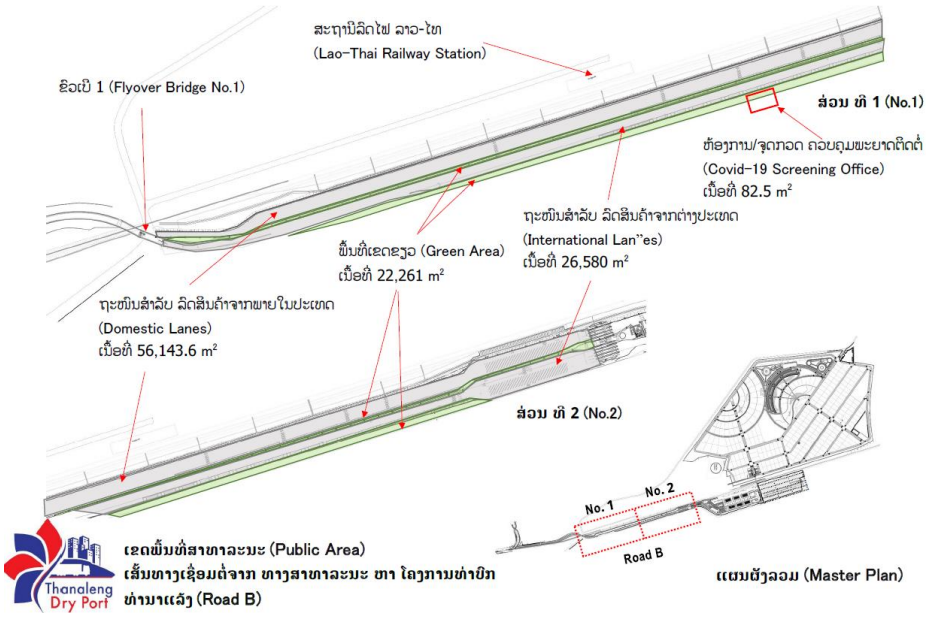
These areas are described in more detail below.

2.2.1 Access Road (Road B)

This is the main access road (approximately 1,9 km), laid parallel to the Lao-Thai railway, with two to six lanes (8-26 m) between the fly-over Thanaleng Railway Bridge and the Dry Port Gates.

At the northern end of the access road, there are separate in- and out-gates for international trucks (i.e. trucks

travelling to and from Thailand) and domestic trucks (i.e. trucks delivering and receiving cargo for Laos based clients) at the entrance to the Dry Port.



Source: Dry Port Area. 2021. Provided by VLP

Figure 2.4: Project Layout – "Road B" Access Road

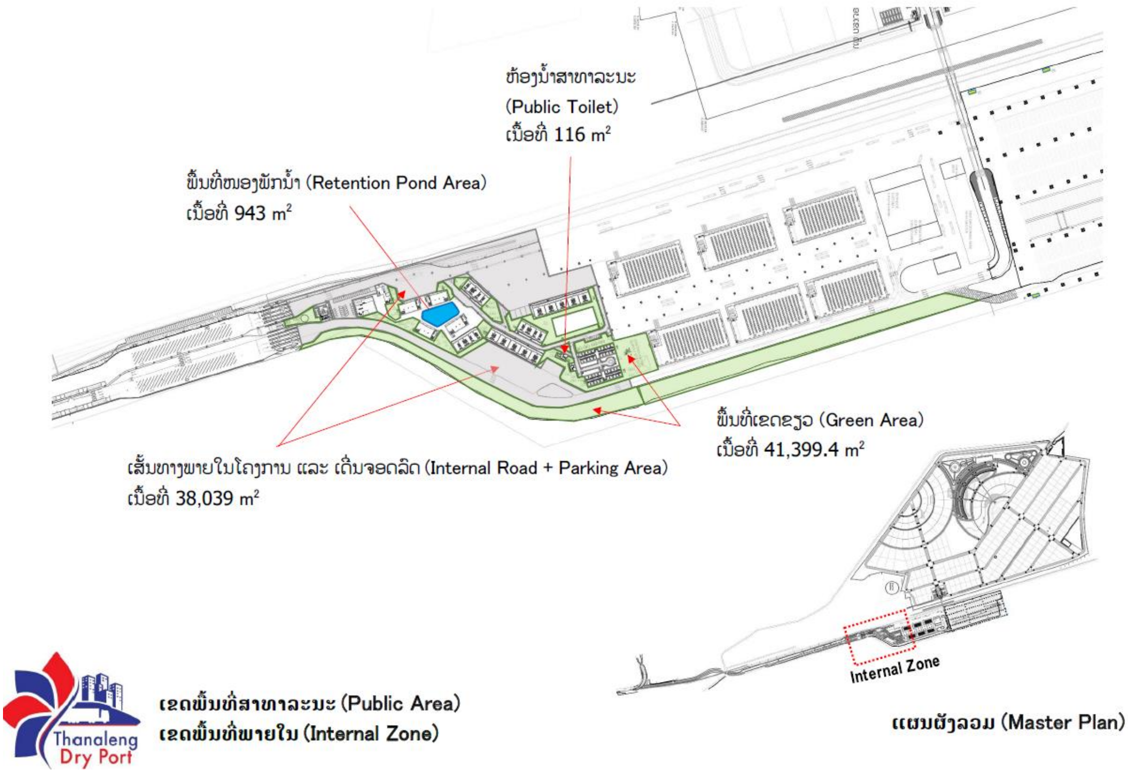
2.2.2 Internal Zone (Office Zone)

In this area are located the main gates to the Dry Port, administrative offices, customs facilities including custom offices, weighbridges area and x-ray scanners to allow for quick checking of containers. The customs facility also includes warehouses for physical inspections of containers and storage space for confiscated goods.

In this area are also located a trucks parking area, public toilets, two buildings for accommodation, a canteen, a coffee shop, the water supply station and the retention pond for collected waste water.

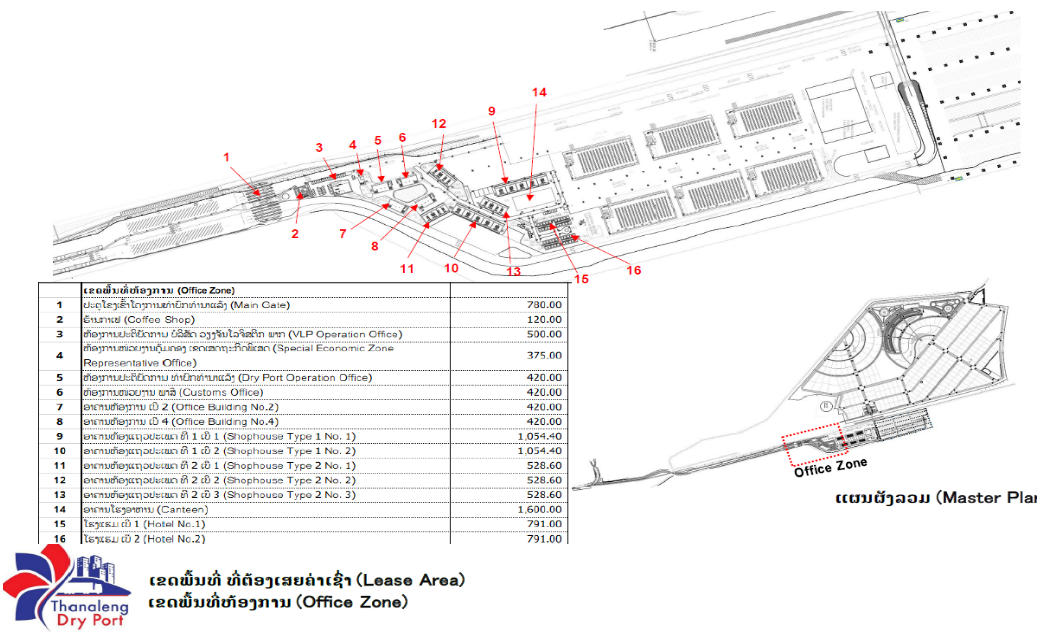
In detail the main buildings present in the area are:

- ✓ One canteen;
- ✓ Two motel buildings;
- ✓ One building housing public toilets;
- ✓ Five shop houses;
- ✓ Six office buildings.



Source: Dry Port Area. 2021. Provided by VLP

Figure 2.5: Project Layout – Internal Zone or Office Zone



	ເຂດພື້ນທີ່ຫ້ອງການ (Office Zone)	
1	ປະຕູໂຂງເຂົ້າໂຄງການທ່າບົກທ່ານາແລ້ງ (Main Gate)	780.00
2	ຮ້ານກາເຟ (Coffee Shop)	120.00
3	ຫ້ອງການປະຕິບັດການ ບໍລິສັດ ວຽງຈັນໂລຈິສຕິກ ພາກ (VLP Operation Office)	500.00
4	ຫ້ອງການໜ່ວຍງານຄຸ້ມຄອງ ເຂດເສດຖະກິດພິເສດ (Special Economic Zone Representative Office)	375.00
5	ຫ້ອງການປະຕິບັດການ ທ່າບົກທ່ານາແລ້ງ (Dry Port Operation Office)	420.00
6	ຫ້ອງການໜ່ວຍງານ ພາສີ (Customs Office)	420.00
7	ອາຄານຫ້ອງການ ເບີ 2 (Office Building No.2)	420.00
8	ອາຄານຫ້ອງການ ເບີ 4 (Office Building No.4)	420.00
9	ອາຄານຫ້ອງແຖວປະເພດ ທີ 1 ເບີ 1 (Shophouse Type 1 No. 1)	1,054.40
10	ອາຄານຫ້ອງແຖວປະເພດ ທີ 1 ເບີ 2 (Shophouse Type 1 No. 2)	1,054.40
11	ອາຄານຫ້ອງແຖວປະເພດ ທີ 2 ເບີ 1 (Shophouse Type 2 No. 1)	528.60
12	ອາຄານຫ້ອງແຖວປະເພດ ທີ 2 ເບີ 2 (Shophouse Type 2 No. 2)	528.60
13	ອາຄານຫ້ອງແຖວປະເພດ ທີ 2 ເບີ 3 (Shophouse Type 2 No. 3)	528.60
14	ອາຄານໂຮງອາຫານ (Canteen)	1,600.00
15	ໂຮງແຮມ ເບີ 1 (Hotel No.1)	791.00
16	ໂຮງແຮມ ເບີ 2 (Hotel No.2)	791.00

Source: Dry Port Area. 2021. Provided by VLP

Figure 2.6: Project Layout – Internal Zone or Office Zone – Main Facilities

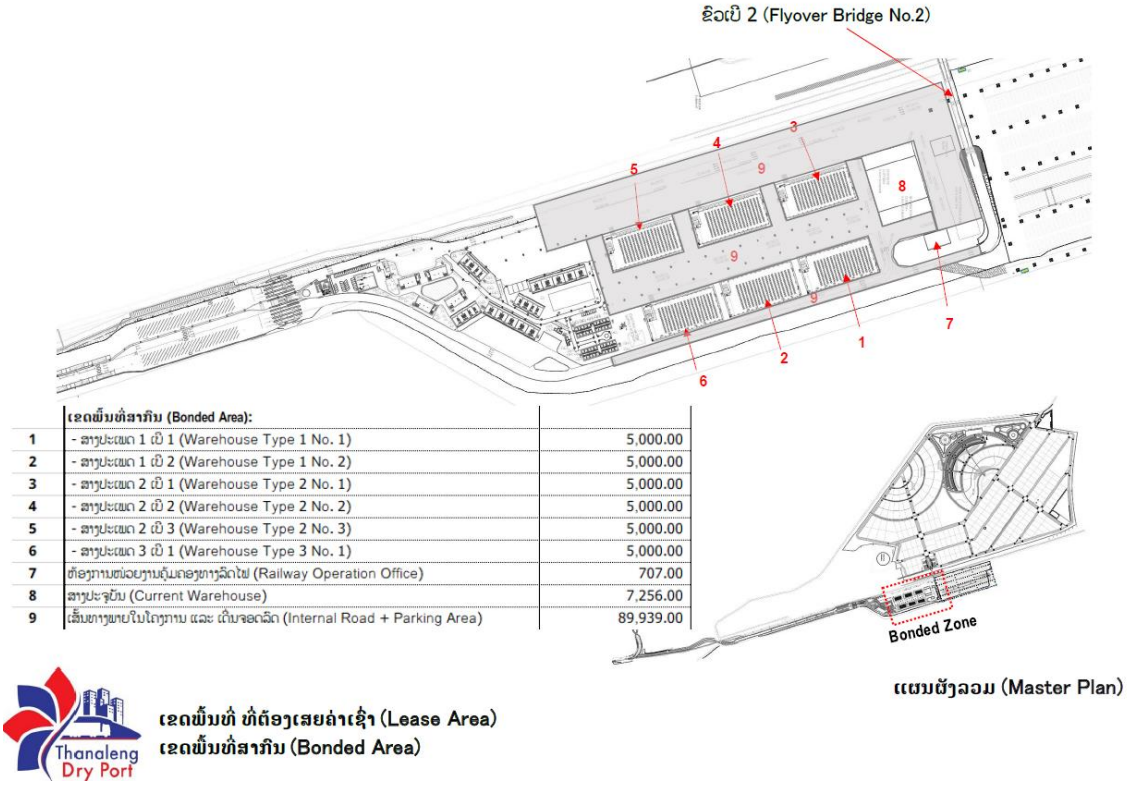
2.2.3 Bonded Area (CFS)

This area, also called Container Freight Station (CFS) consists of warehouses for consolidating or deconsolidating freight shipments. Office space is provided adjacent to the warehouses for CFS and Customs employees.

In particular in this area are present six warehouses:

- ✓ No. 2 Ware House Type 01 (50 m x 100 m), 1 storey, 17 m high,
- ✓ No. 1 Ware House Type 02 (50 m x 100 m), 1 storey, 17 m high,
- ✓ No. 3 Ware House Type 03 (50 m x 100 m), 1 storey, 17 m high.

This area is dedicated to the cargo transshipment from one vehicle to another particularly: the transport trucks entering the Dry Port that are required to transit to another transport truck in the Dry Port. In this area are located Temperature Controlled Warehouse, General Warehouse and Tennant Warehouse. Prior to the storage of goods in the warehouse, there shall be a quality inspection including live animals, food, medicine, toxic materials, chemical and hazardous materials. In this area are also located a Refrigerated Container Area, located the existing Container Yard area and the existing warehouse. At the eastern side of this area is the second fly-over bridge (Fly-over bridge No.2) connecting the Dry Port area with the planned Logistic Park.



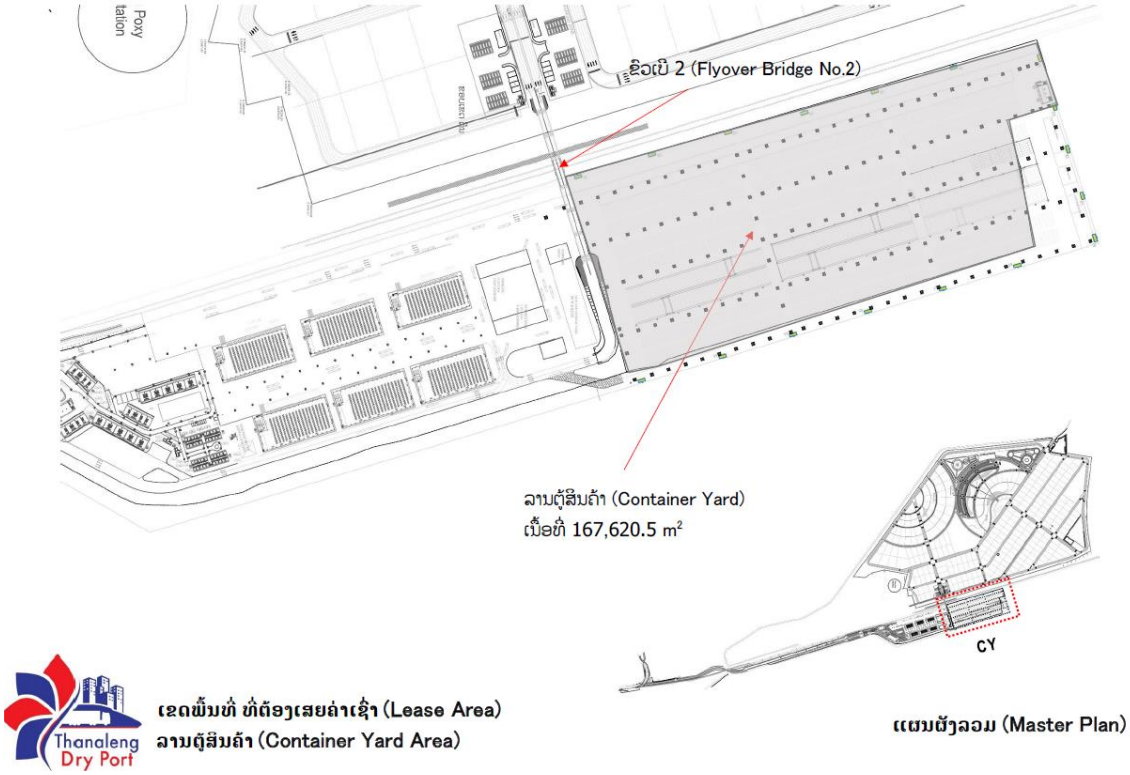
	ເຂດພື້ນທີ່ສາກົນ (Bonded Area):	
1	- ສາງປະເພດ 1 ເບີ 1 (Warehouse Type 1 No. 1)	5,000.00
2	- ສາງປະເພດ 1 ເບີ 2 (Warehouse Type 1 No. 2)	5,000.00
3	- ສາງປະເພດ 2 ເບີ 1 (Warehouse Type 2 No. 1)	5,000.00
4	- ສາງປະເພດ 2 ເບີ 2 (Warehouse Type 2 No. 2)	5,000.00
5	- ສາງປະເພດ 2 ເບີ 3 (Warehouse Type 2 No. 3)	5,000.00
6	- ສາງປະເພດ 3 ເບີ 1 (Warehouse Type 3 No. 1)	5,000.00
7	ຫ້ອງການໜ່ວຍງານຄຸ້ມຄອງທາງລົດໄຟ (Railway Operation Office)	707.00
8	ສາງປະຈຸບັນ (Current Warehouse)	7,256.00
9	ເສັ້ນທາງພາຍໃນໂຄງການ ແລະ ເດີ່ນຈອດລົດ (Internal Road + Parking Area)	89,939.00

Source: Dry Port Area. 2021. Provided by VLP

Figure 2.7: Project Layout – Bonded Area (CFS) – Main Facilities

2.2.4 Container Yard (CY) area

Also called RTG Container Yard, the CY is a newly paved area where all laden containers, whether arriving by truck or by train, are temporarily stored before being collected for delivery to the end client. The RTG container yard also includes dedicated reefer (refrigerated) storage areas with electrical connection points. All containers are handled using rubber tyred gantries (RTGs). Empty containers are stored in blocks and handled using empty container handlers (ECHs).



Source: Dry Port Area. 2021. Provided by VLP

Figure 2.8: Project Layout – Container Yard (CY) Area – Main Facilities

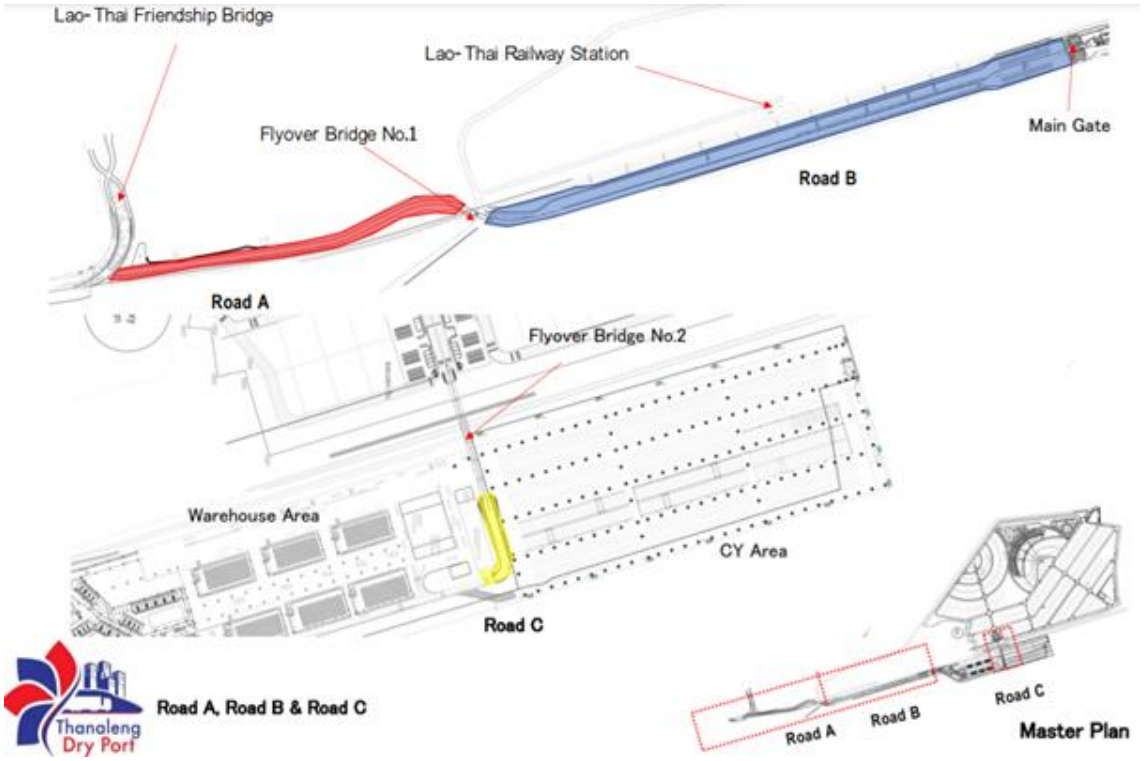
2.3 Permanent Supporting Infrastructure and Services

In the following sections are reported the main infrastructures and services supporting the operation of the Dry Port.

2.3.1 Connection Roads

To support the truck traffic to and from the Dry Port a new section of road (with a total length of approximately 1.2 km), also named Road A connects the existing road from the first Friendship Bridge with the access road (Road B) of the Dry Port. This road is a two lane road and is 8-9 m in width. It connects with the 80 m long flyover bridge before entry to the Dry Port (Figure 2.9).

In addition is also planned a new road section (Road C), within the Dry Port area, to connect the Warehouse area with the Flyover Bridge No. 2 linking the Dry Port with the planned Vientiane Logistic Park area.



Source: Dry Port Area. 2021. Provided by VLP

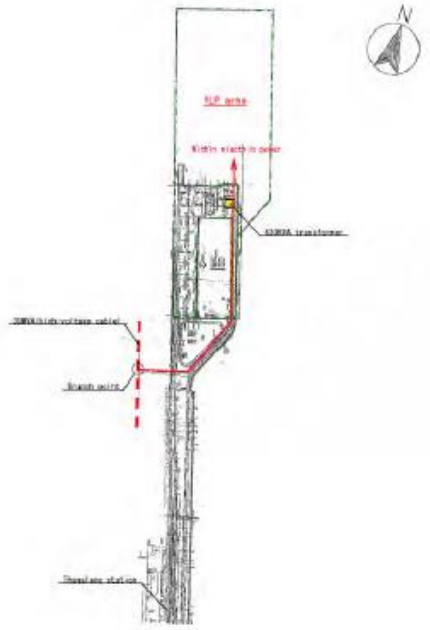
Figure 2.9: Connection Road (Road A) and Road C

2.3.2 Electricity

The power requirement for the Dry Port in the operational phase has been estimated between 4 MW (at the beginning of the operation) and 11 MW (in 2040, according to the planned growth of the activities) per annum.

This demand is to be met via a 1.6 km 22kV transmission line, already existing and built to support the pre-existing Container yard, that is routed between the Dry Port and the Dong Poxy Substation along a 10 m wide servitude.

The transmission line location is showed in Figure 2.10



Source: Japan International Cooperation, July 2015. Preparatory Survey on VLP in Lao PDR

Figure 2.10: Transmission line for the Dry Port

2.3.3 Water Supply

The water demand for the Dry Port in the operational phase of the Project is estimated to range between 10,000 m^3 per annum for the first 19-20 years of operation, and thereafter increase to 50,000 m^3 per annum. This estimate is based on water consumption of 100 litres per capita per day for the for the operational staff, and an allowance for miscellaneous water demand to cover hosing down of equipment, watering landscaped areas, etc.

It is intended that water needs for the Project will be met through the Nam Papa water supply system. The Project Area is supported by the Chinaimo Water Supply Facility, (with a daily capacity of 80,000 m^3), Thaduea 1 Water Supply Facility (with a daily capacity of 8,000 m^3) and Thaduea 2 Water Supply Factory (with a daily capacity of 20,000 m^3).

An existing water pipeline, with a diameter of 150 mm connects to the Chinaimo plant which will feed the facility. This pipeline has the ability to provide 800 m^3, which can easily meet the demand requirements. The main water pipeline supply will be connected with a water room (pumping station on site) for the distribution to the internal network. Nearby the pumping station is foreseen an underground water storage tank of 300 m^3 capacity, for raw water supply, to serve the project.

The layout of the main water supply and internal distribution network for the Dry Port is shown in Figure 2.11 and Figure 2.12.

There is currently no water treatment proposed on site and the water that is provided via the pipeline is non-potable. Drinking water for the Dry Port staff and guests will be provided by the local drinking water plant in bottled water and with drinking fountains.

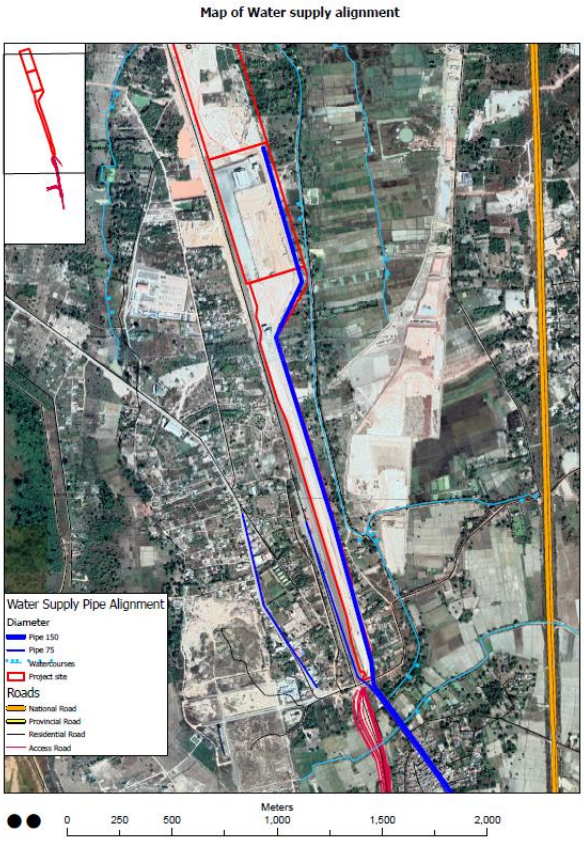


Figure 2.11: Water supply for the Dry Port

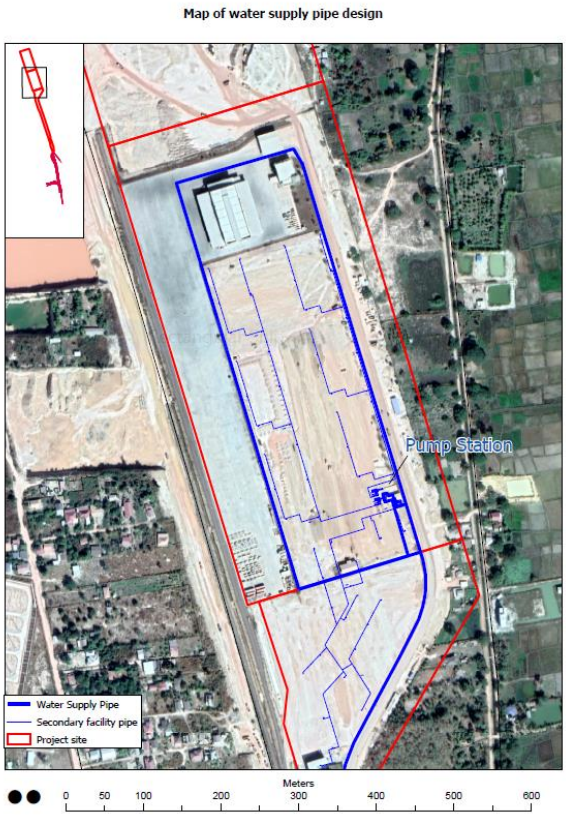


Figure 2.12: Internal Reticulation network

2.3.4 Wastewater Treatment and Discharge

During the operational phase of the Dry Port Project facilities will be provided with adequate septic tanks, located in proximity to all the relevant facilities.

- ✓ In the Bonded area (CFS), each one of the six warehouses has a dedicated septic tank (capacity 2 m^3 each);
- ✓ In the Internal Zone (Office Zone) the following facilities are provided with septic tank:
  - canteen with water treatment tank (capacity 20 m^3),
  - each of the two Motel building with a dedicated septic tank of (capacity 10 m^3 each),
  - public toilets with a septic tank (capacity 20 m^3),
  - each of the five Shop House with a dedicated septic tank (capacity 20 m^3 each),
  - each of the six Office Building with a dedicated septic tank (capacity 12 m^3 each).

All the septic tanks are connected with an underground reinforced concrete pipe network for the discharge of the treated water. The overflow from the septic tanks will be collected in the retention pond and tested prior to be discharged in the surface channel located on the western side of the Dry Port area.

The estimated quantity of wastewater produced during the operation phase of the Dry Port is 2,903,940 litres/year (2,032,758 litres/year of “grey water” and 871,182 litres/year of “black water” deriving from toilets).

The entire area of the Dry Port is also provided with a drainage network to collect the stormwater runoff. The collected water will be collected in the retention pond located in the Office Zone and then discharged in the surface water channel located at the West side of the Dry Port area.

The estimated quantity of collected water (stormwater runoff) is 1,392,300 litres/year.

The Retention Pond is located at the South of the Office Zone. The pond has a surface of 925 m^2 with a water depth of 3 m (3,500 m^3 capacity).

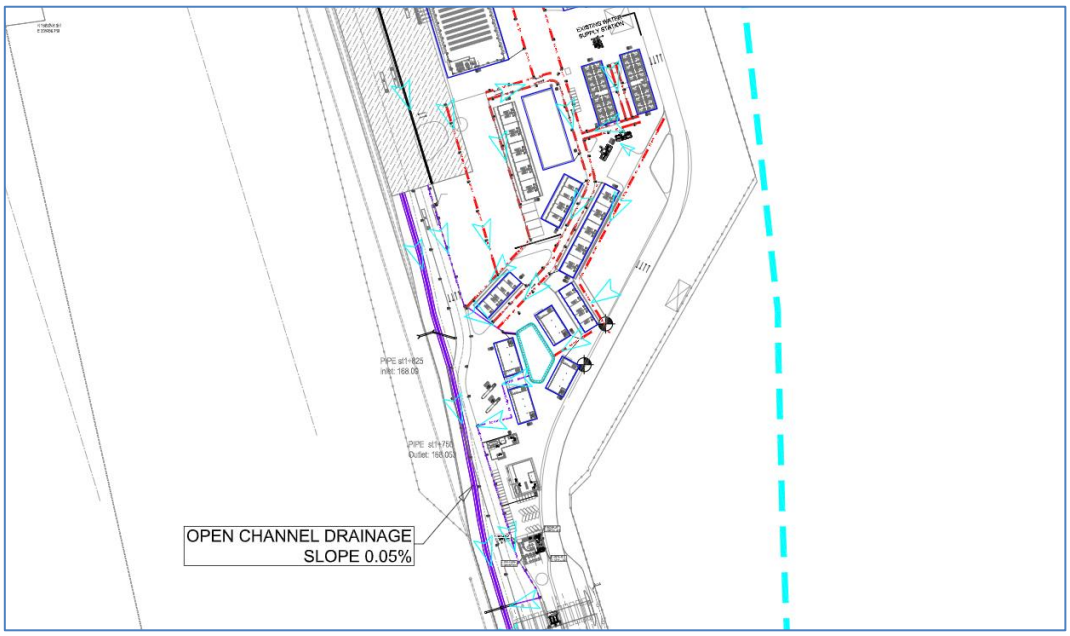
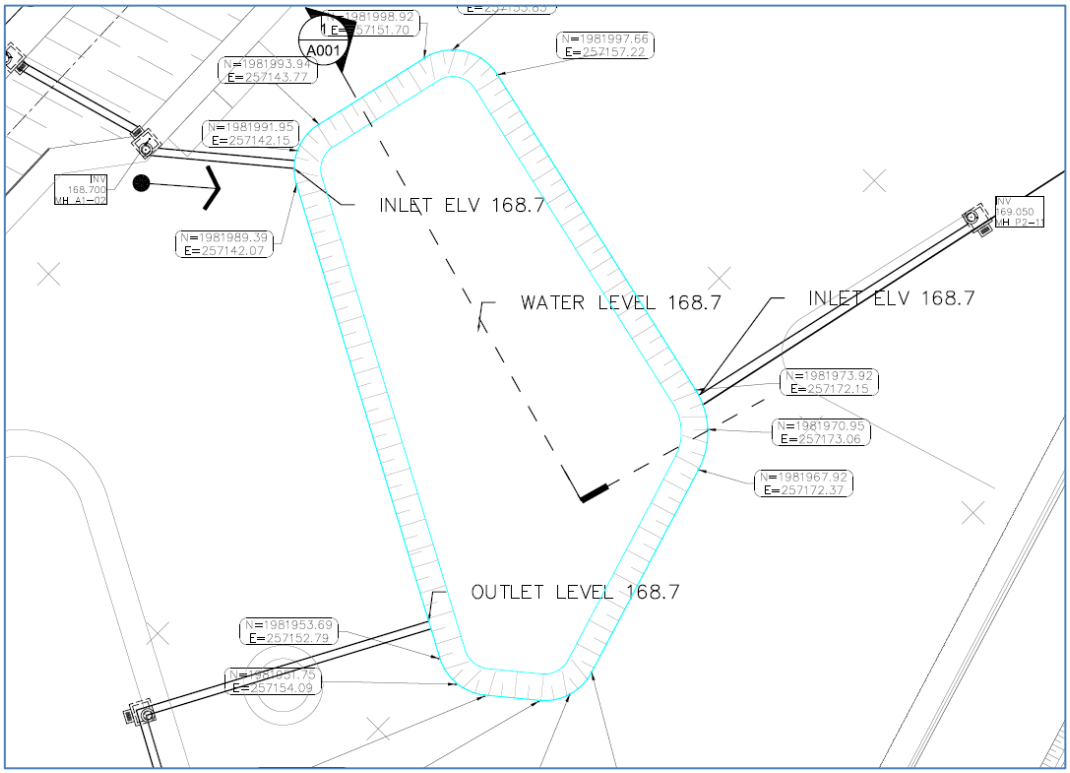
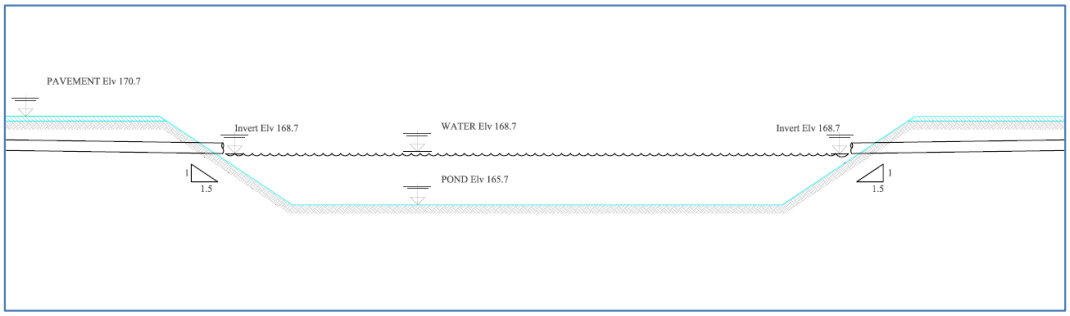


Figure 2.13: Drainage System (Office Zone)





Source: Dry Port Layout. 2020. Realised by PISECCON (Lao) sole co., ltd for VLP

Figure 2.14: Layout and Section of the Retention Pond

2.3.5 Waste

During the operational phase of the Project, the following is foreseen in terms of waste production:

- ✓ 150 kg per day from Warehouses, Container Yard and Offices;
- ✓ 15 kg per day of hazardous waste (such as exhausted oil, batteries, etc.).

All the solid wastes will be stored in a dedicated Waste Storage Facility located in the Office Zone. The Waste Storage Facility is 18 m x 8 m and divided in three sectors (non-biodegradable, biodegradable and recyclable wastes) and provided with concrete floor to avoid leaks. No specific or separate facilities are currently planned for the storage of hazardous wastes.

The waste collection and disposal will be managed by an appointed contractor. Given, that there are no licensed hazardous waste storage/treatment facilities in Laos, it is currently anticipated that the waste will be disposed of at the municipal landfill site. The landfill, managed by Vientiane Government, is located 25 km from the Project site in North-East direction. A dedicated section is allocated at the landfill facility for hazardous waste streams.

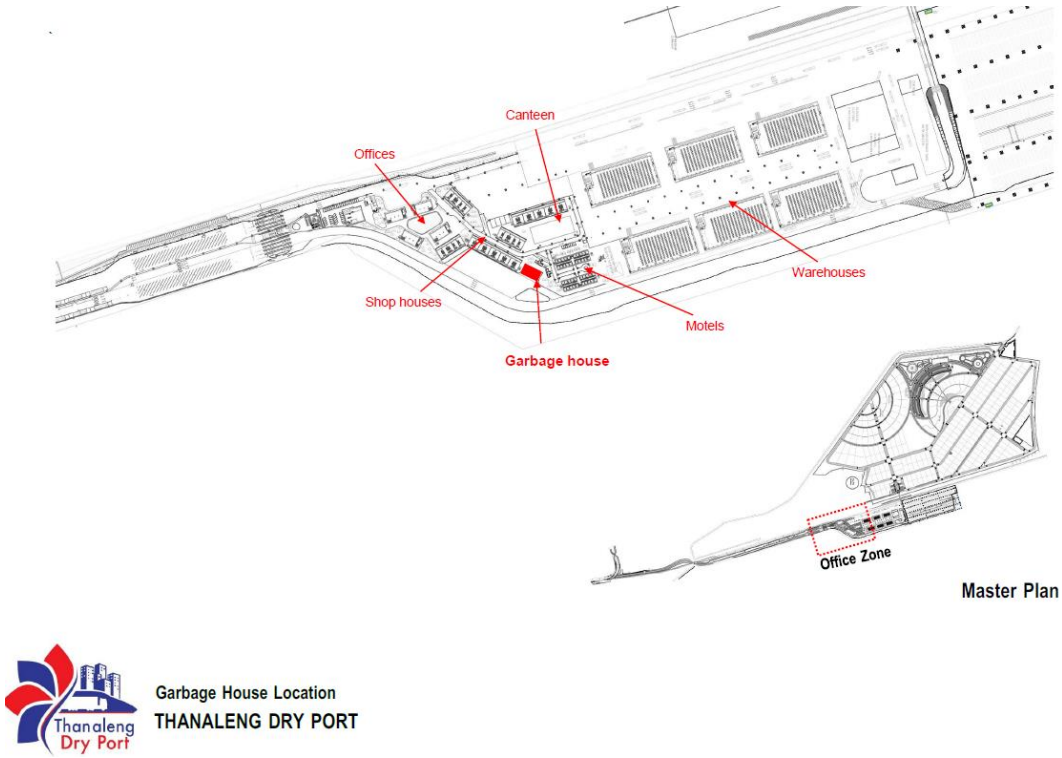


Figure 2.15: Location of the Waste Storage Facility

2.3.6 Accommodation on Site

During the Operation Phase of the Project the permanent personnel will be accommodated in two staff accommodation buildings for a total capacity of 125 – 164 staff. Each accommodation buildings (size 13.6 m x 50 m with 2 floors) will include 41 units on two levels per building with toilets.

The two accommodation buildings will be located inside the Thanaleng Dry Port area in the Office Building Zone.

Source: Pictures Provided by VLP.2021

Figure 2.16: Staff Accommodation

2.4 PROJECT COMPONENTS

The layout of the Dry Port has been developed to support the functions that it is offering:

- ✓ Providing connectivity between the Lao-China railway and Thailand in terms of import-export and facilitating goods transport through Thailand, China and Vietnam;
- ✓ Consolidate cargos to service the provinces in the northern and central parts of Laos;
- ✓ Facilitate the registration of cargo and offer a handling service, and
- ✓ Allow for cross docking and packaging.

The Thanaleng Dry Port area, is thus divided into the following functional areas:

- ✓ Road B or Access Road – the main access road (in and out) of the Dry Port which is approximately 1.7 km in length and includes a fly-over bridge above the existing Lao-Thai railway. The access road provides domestic lanes (for trucks delivering and receiving cargo for Laos based clients) and international lanes (for trucks travelling to and from Thailand);
- ✓ Internal/Office Zone – this area serves and administrative and support function. It includes the Main Gate, Offices (including custom offices), 5 Shophouses, Canteen and 2 Hotels. The customs facility includes warehouses for physical inspections of containers and storage space for confiscated goods;
- ✓ Bonded Zone/Container Feight Station (CFS) – the purpose of this area is for the consolidation and deconsolidation of freight shipments. This area includes 6 warehouse buildings (5,000 m^2 each), an existing Warehouse, Railway operation office, Internal roads and Parking areas and a second fly-over bridge joining the Dry Port with the planned Logistic Park;
- ✓ Container Yard/ Rubber Tyred Gantries Cranes (RTGs) container yard – a new paved area (16.7 ha).Tthis area is where all laden containers, whether arriving by truck or by train, are temporarily stored before being collected for delivery to the end client. All containers are handled using rubber tyred gantries cranes. Empty containers are stored in blocks and handled using empty container handlers (ECHs).

2.5 PROJECT STATUS

As mentioned above, at the time of drafting the ESIA upgrade (December 2021) the construction of the Dry Port and related facilities is completed, and commissioning process is ongoing.

Pre-construction phase – which has entailed site preparation and levelling commenced in September 2020 and reached completion in December 2021.

Construction phase of the Project commenced in January 2021 and has been completed in December 2021.

The Dry Port Operational phase is foreseen at least until 2050. The facility will then be decommissioned and appropriately rehabilitated

3 REGULATORY FRAMEWORK AND PROJECT STANDARDS

The Project Company are required to meet a number of key environmental and social standards as outlined below. This S-ESMMP Framework and the underlying MPs are intended to help ensure that such standards are met during the Operational Phase of the Project.

Where local and Lender standards differ, the Project is committed to apply the more stringent standard unless otherwise agreed or justified in the final SESIA.

This section provides a summary of the policies, legal and regulatory requirements and other applicable standards relevant to the S-ESMMP.

3.1 COMPANY POLICIES

VLP has adopted:

- ✓ a Safety, Security, Health, Environment and Community (SSHEC) Policy, June 2021;
- ✓ an Occupational Health and Safety Policy and Objectives, 2021; and
- ✓ a Contractor Management Framework, January 2020.

These policies apply to the VLP and all activities carried out by the Company as part of this Project and are presented in Appendix B1.

3.2 NATIONAL LEGISLATION AND STANDARDS

The full list of relevant national laws is provided in the Chapter 3 “Policy, Legal and Institutional Framework” of S-ESIA related, and includes, of particular relevance to this project:

- ✓ Law on Environmental Protection, Amended in 2013;
- ✓ Agreement No.707/MONRE, dated 5th Dec (2013);
- ✓ Agreement No.2796/MoNRE, dated 19th December (2018);
- ✓ Decree on the Environment and Social Impact Assessment No.21/GO, (2019);
- ✓ Decree on the Compensation and Resettlement No.84/GO, (2016);
- ✓ Law on Water and Water Resources No.23/NA, (2017);
- ✓ Law on Hygiene, Disease Prevention and Health Promotion No.73/NA, (2019);
- ✓ Law on National Heritage No.138/PDR, (2005);
- ✓ Agreement on the National Environmental Standard No.81/GO, 2017;
- ✓ Guideline on Consultation with Ethnic Groups (2013);
- ✓ Public Involvement Guideline (2013);
- ✓ Technical Guidelines on Compensation and Resettlement of People Affected by Development Project, (2005);
- ✓ the Technical Guidelines on ESIA (2017);
- ✓ Guideline on Public Involvement in the Environmental and Social Impact Assessment Process (2013).

A full suite of local standards that need to be met for projects that are developed in Laos is presented in Appendix B2 of the S-ESIA.

3.3 NATIONAL PERMITS

Operational permits for the Project are issued by Lao regulatory authorities. VLP will develop a permit matrix and will ensure that all relevant environmental and social requirements of these permits are addressed. Any requirements arising from the revision/amendment of those permits will also be followed up.

3.4 INTERNATIONAL STANDARDS

In addition to the applicable host Country Laws, this SESIA Report presents the Project impacts and mitigation measures with explicit reference to the following international standards and guidelines:

- ✓ IFC Performance Standards (2012);
- ✓ World Bank (WB) Group's Environmental Health and Safety (EHS) General Guidelines (April, 2007). This document covers four areas of international good practice, namely:
  - Environmental,
  - Occupational Health and Safety (OHS),
  - Community Health and Safety (CHS);
- ✓ World Bank (WB) Group's Industry Sector Guidelines:
  - WB Group EHS Guidelines for Electric Power Transmission and Distribution (April 2007);
- ✓ International Laws and Conventions ratified by the Lao PDR;
- ✓ Any other additional Project-specific standards adopted for the Project.

The full list of applicable standards is described in the Chapter 3 of the SESIA.

3.5 STANDARDS APPLICABLE FOR THIS PROJECT

Given the above requirements to meet the more stringent of the standards set in terms of the Laos legislation and the international requirements that need to be met for this project, an analysis has been undertaken and presented in Table 3.1 with regard to the applicable standards for this project.

Table 3.1: Environmental and Social Standards required for this Project

Parameter	Unit	Average	Laos Threshold Limits	WB EHS Threshold Limits	Project Standards
Air Quality					
SO_2	ppm	1 hour	0.13	-	340 µg/m^3
		24 hours	0.05	20 µg/m^3	20 µg/m^3
NO_2	ppm	1 hour	0.11	200 µg/m^3	200 µg/m^3
		1 year	0.02	40 µg/m^3	38 µg/m^3
PM_{10}	mg/m^3	24 hours	0.12	50 µg/m3	50 µg/m^3
		1 year	0.05	10 µg/m3	10 µg/m^3
$PM_{2,5}$	mg/m^3	24 hours	0.05	25 µg/m^3	25 µg/m^3
		1 year	0.015	10 µg/m^3	10 µg/m^3
Ozone	mg/m^3	1 hour	0.20	-	200 µg/m^3
		8 hours	0.14	100 µg/m^3	100 µg/m^3
Water Quality					
pH	pH		6-8.5	6-9	6-8.5
BOD	mg/l		Not more than 30 mg/l according to the type of industry and receiver but not more than 60 mg/l	30	30 mg/l
COD	mg/l		Not more than 120 mg/l according to the type of industry and receiver but not more than 400 mg/l	125	
Total nitrogen	mg/l		Not more than 100 mg/l according to the type of industry and receiver but	10	10 mg/l

			not more than 200 mg/l		
Total phosphorus	mg/l		-	2	2 mg/l
Oil and grease	mg/l		Not more than 0.5 mg/l according to the type of industry and receiver but not more than 15.0 mg/l	10	
Total suspended solids (TSS)	mg/l		Not more than 50 mg/l according to the type of industry and receiver but not more than 150 mg/l	50	50 mg/l
Total coliform bacteria	Most Probable Number (MPN) / 100 ml		-	400	400 MPN/100 ml
Ambient Noise Standards					
Noise	dBA	One Hour LAeq during Daytime	70 for 24 hours L_{Aeq} (dBA)	55	55 dBA
	dBA	One Hour LAeq during Nighttime		45	45 dBA
Occupational Noise					
Noise	dB(A)	8 hours period	Continued volume (L_{eq}) for 8 hours not exceed 75 dB(A)	No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).	75 dBA for 8 hours or instantaneous level of 140 dBC

4 ROLES AND RESPONSIBILITIES

The responsibilities for implementation of the specific actions identified in this S-ESMMP Framework have to be furtherly detailed in each specific MP.

The Project Company has already produced an organizational chart that identifies all role and responsibilities across the Project which is explained in more detail below. This document is dynamic and will require regular review and update.

4.1 COMPANY ROLES AND RESPONSIBILITIES

HSESQ management roles and responsibilities will be set out in organization charts that form part of the Dry Port HSESQ-MS. The primary responsibility of the Project Company should be to ensure that a sufficient number of competent staff and management resources are made available to adequately address all health, safety, security, environmental and social issues across the Project.

The Project Company organogram identifies all roles and their respective responsibilities for organization of the Dry Port. The General Dry Port Manager reports to the Managing Director who reports to Vice President and then President. He is supported by a Commercial and Engineering Manager. The organisation of the Dry Port at the Manager Level also relies on the Health, safety, security and environment (HSSE), Account & Finance, Human Resources, Admin and Operations Manager. They all report to the Managing Director who reports to Vice President and then President.

The detailed organogram related to HSE includes the role and respective responsibility of the HSSE Department, who reports to the HSSE Executive, then to HSSE Manager and Managing Director.

This role is supported by the Safety, Health, Security, and Environmental Officers, the closed-circuit television (CCTV) Operators and the Admin Safety.

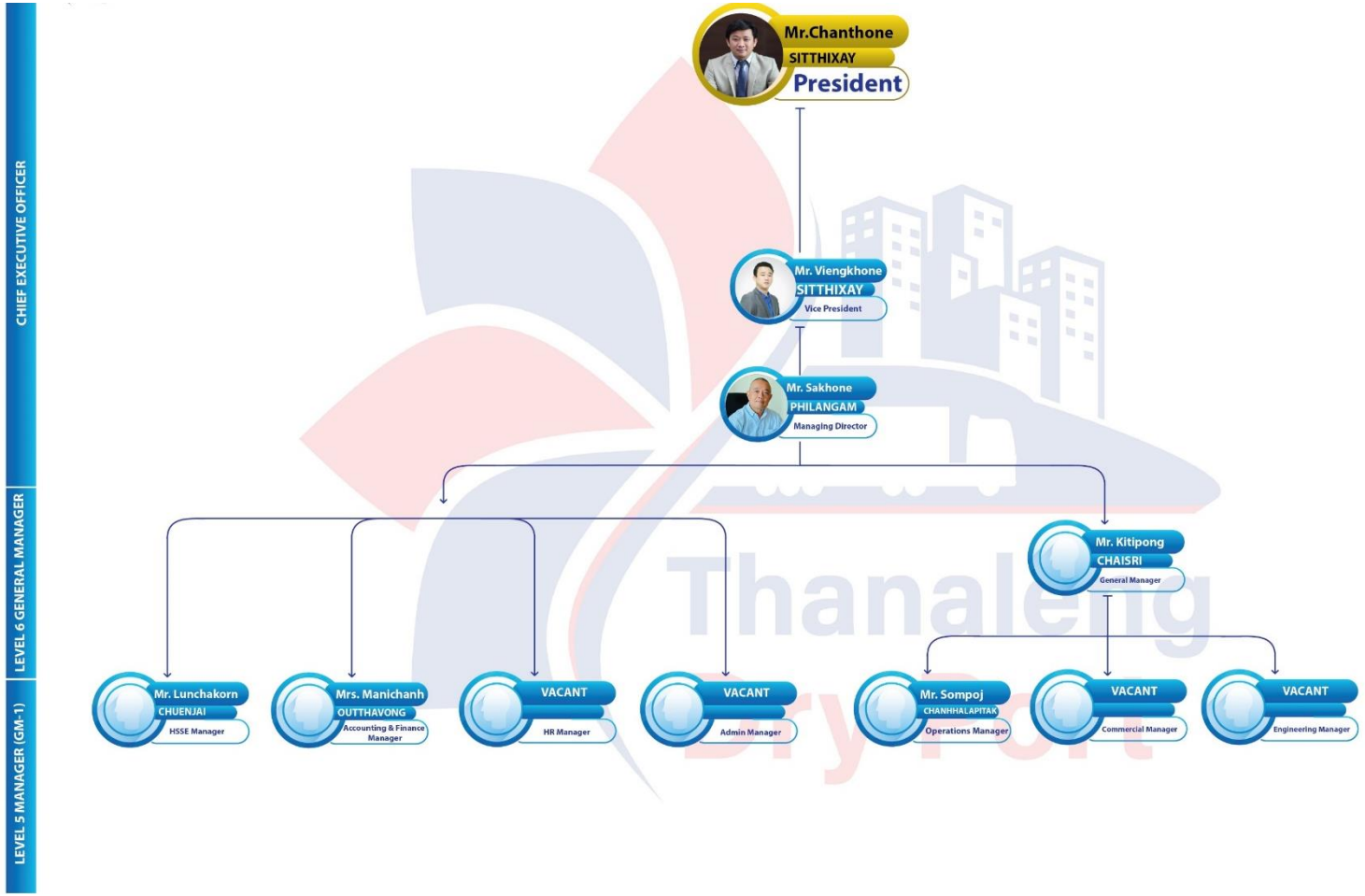


Figure 4.1: VLP Organizational Chart

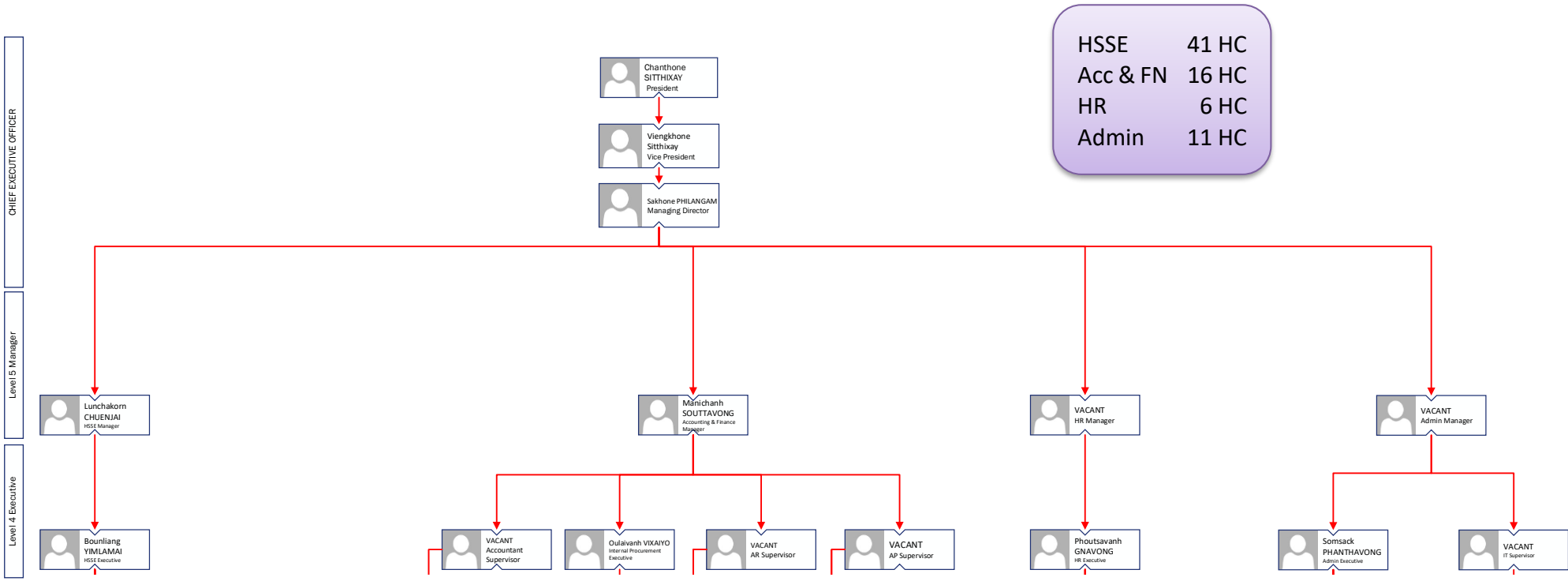


Figure 4.2: Dry Port Organizational Chart

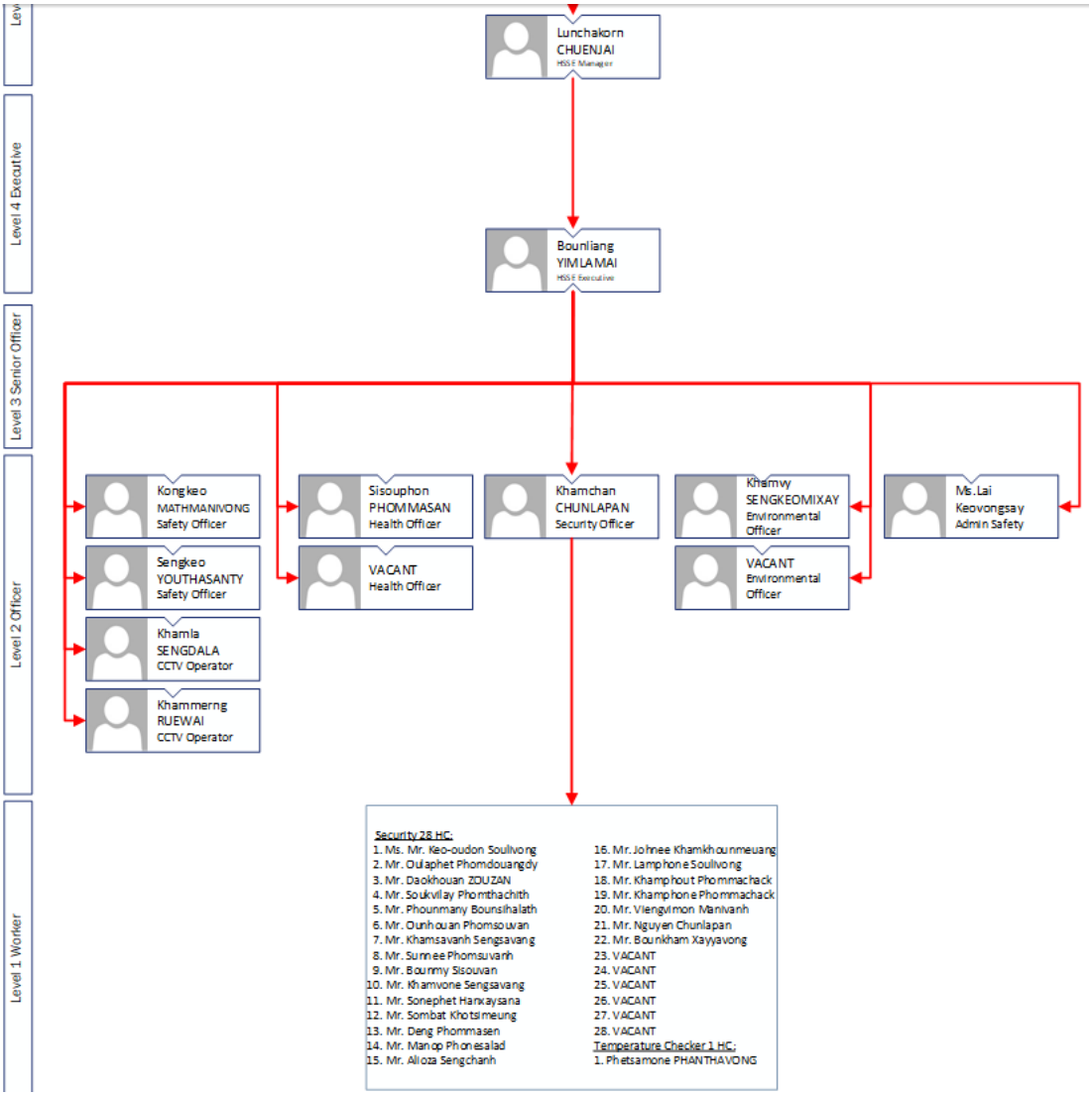


Figure 4.3: HSSE Organizational Chart

4.2 COMPETENCY AND TRAINING

The Project Company must establish a process to ensure the necessary training and competency is provided to manage all environmental, social, health, safety and security issues. Both will need to develop a training program identifying all competencies and requirements that are relevant for each staff member based on their role.

Training is delivered to employees on a regular basis depending on the results of regular assessments of needs carried out by the Company.

HSSE training as a minimum will address the following topics:

- ✓ General principles, content and requirement of the Project Environmental and Social Management System (ESMS);
- ✓ Documentation (including procedures, plans, directives etc.) specific to the roles, responsibilities and duties of each worker and way to access it; and
- ✓ Specific duties of workers involved in Project activities.

5 MITIGATION, MANAGEMENT AND MONITORING

5.1 MITIGATION AND MANAGEMENT ACTIVITIES

Management actions and mitigation measures that are to be implemented before and during operational activities in order to minimise environmental and social impacts are to be described in each MP.

An overview of the necessary actions is presented, and the actions themselves are detailed in tabular form in Appendix B2 of this S-ESMMP.

Activities associated with decommissioning have been excluded at this stage given that this phase is anticipated to commence, at the earliest between 2040 and 2050 and as such it is premature to prepare a detailed Decommissioning Management Plan.

5.2 ENVIRONMENTAL AND SOCIAL MONITORING ACTIVITIES

The monitoring provisions required for the operational phase of the Project have been included on the basis of:

- ✓ Activities where 'source-pathway-receptor' linkages resulting in anticipated significant environmental impacts have been identified;
- ✓ Regulatory monitoring programmes are required to be met.

The monitoring requirements are included in Appendix B2 and include:

- ✓ Traffic volume monitoring;
- ✓ Traffic emissions monitoring;
- ✓ Noise monitoring;
- ✓ Waste-water discharge monitoring;
- ✓ Surface water and groundwater monitoring;
- ✓ Project boundaries monitoring;
- ✓ Invasive species monitoring;
- ✓ Livelihood Restoration Plan (LRP) arrangements monitoring;
- ✓ Labour employment and working conditions monitoring;
- ✓ Training schedule and attendance monitoring;
- ✓ Use of PPE monitoring;
- ✓ Grievance log and response timeframe.

6 VERIFICATION

Performance monitoring, reporting and auditing should be carried out to ensure compliance with the requirements of this S-ESMMP. The following provides an outline approach which is aligned to the requirements of ISO 14001, the reference point for Environmental Management Systems.

To ensure an appropriate, robust and effective environmental and social management commensurate to the scale of the Project through its lifetime the following actions will need to be implemented:

- ✓ the SESMMP framework will be reviewed and amended in accordance with the Project as it evolves. Key information about any changes to Project description will be regularly reviewed and site visits undertaken by the Project Company to identify the true impacts of the Project;
- ✓ specific Management Plans will need to be developed to meet the management and mitigation objectives set out here, and the outcomes of regular reviews; and
- ✓ an evaluation of the effectiveness of measures included in the SESMMP framework need to be undertaken on a regular basis. Evaluation will be undertaken through on-going communication with the stakeholders and lenders supplemented by site audits and monitoring data review to identify weaknesses and / or gaps in the management plans. The S-ESMMP will be updated accordingly to ensure appropriate, robust and effective environmental and social management commensurate to the scale of the Project through its lifetime.

6.1 PROJECT COMPANY AUDITING ACTIVITIES

The roles for monitoring and audits are divided as follows:

- ✓ The HSSE team is the responsible party for monitoring activities and internal auditing;
- ✓ The Ministry of Natural Resource and Environment team is the responsible party for monitoring activities and internal auditing.

6.2 KEY PERFORMANCE INDICATORS (KPI)

Key Performance Indicators (KPIs) are quantitative or qualitative measurements used to measure the performance over time. They can be used to assess the effectiveness of control measures and demonstrate performance improvements during steady state operations.

Relevant KPIs are preliminarily presented in Appendix B2. As a minimum these are to meet the environmental and social standards identified in Section 3.5. If any of the KPI values exceed these standards, then the need to refine mitigation measures will be investigated and implemented as necessary.

6.3 NON-CONFORMANCE

Non-conformances and progress on associated corrective actions will be identified, recorded and managed in line with the HSESQ-MS procedures and action tracking system.

6.4 REPORTING

The following reports should be prepared for the Project:

- ✓ **Project Company external reporting for regulatory compliance:** a register of all external stakeholder reporting requirements under Laos Legislation and for regulatory compliance purposes should be developed where appropriate. The frequency of reporting, the required reporting format and the person(s) responsible for producing the report (along with any necessary specialist service providers/constructors required to assist for data collection or interpretation purposes) is to be noted in the register. The Project Company will need to ensure that all the necessary reports are produced and submitted in a timely manner in order to achieve on-going regulatory compliance throughout the life of the Project. Meeting regulatory reporting requirements is to also form part of the scope for any internal audits and management reviews;
- ✓ **Independent monitoring:** the IFC PS1 guidance notes state that Projects require an independent environmental and/or social expert to verify project monitoring information. During the construction phase and as a minimum, throughout the first year of the operations, arrangements should be made by the Project Proponent for an environmental and social management specialist to carry out an independent due diligence

audit of the existing practices against the requirements of the S-ESMMP. The key objectives of the audit should be as follows:

- report on the practical implementation of the S-ESMMP and progress since the last reporting period,
- establish feasible improvement objectives for completion before the next reporting period. These audits should be used to re-examine the continued appropriateness of the S-ESMMP and to provide advice on any updates required. Attention should be given to lessons learnt in the light of experience. In particular, consideration should be given to the monitoring programmes in place to determine whether their purpose has been served and they can therefore be terminated or reduced in frequency.

The final scope and format of all reports proposed herein is normally agreed with the lender prior to them being required and produced.

7 MANAGEMENT OF CHANGE PROCEDURE

7.1 OBJECTIVES

The main objectives of the Management of Change Procedure are to:

- ✓ manage in an effective manner any change that may occur to the Project and ESMS in order to minimize risks and improve the business performance;
- ✓ completely control the Project changes by deleting non –essential changes and minimizing changes following the steps provided by the procedure;
- ✓ ensure that approved changes are correctly and promptly implemented, widely communicated, and closed – out. Close – out of any change shall include relevant documentation and establish a permanent record;
- ✓ manage temporary and urgent changes within the overall change process; and
- ✓ identify deviations to the Project which are different that what may have originally been planned, documented, or assumed but are not considered changes to a Project baseline.

7.2 POTENTIAL OCCURRING CHANGES

Changes to the Project (intended as modification of the context, design, controls and operation) may occur during its lifetime, during the Operational Phase.

Examples of changes may be, but are not limited to:

- ✓ changes to the planned Project time schedule (e.g. extension of the Construction Phase, Commissioning Phase deadlines);
- ✓ extension of the Construction site area with potential modification of the Project area of influence (as defined in the ESIA);
- ✓ modification of the HSSE regulatory context and permits (e.g. setting of more stringent regulatory limits);
- ✓ changes to the voluntary commitment to international HSSE Standards undertaken by VLP; and
- ✓ changes in the Project organizational structure (e.g. changes in the VLP structure/organization).

VLP management has to identify those changes that may unintendedly result in negative social and/or environmental impacts (new or additional). These changes that may result in potentially negative impacts are referred to as “significant changes”. A significant change is a modification that entails different assumptions and a different (negative) impact assessment results with respect to those envisaged in the ESIA Study.

The present “Management of Changes Procedure aims at managing the significant changes through the following process:

- ✓ to obtain information regarding any changes that are being planned/considered by VLP or any unintended change to the project context;
- ✓ to identify significant changes;
- ✓ to assess the risk for ES components and related potential impacts (this assessment may need the support of a specialized contractor and may result in the need of updating the ESIA or in the need of providing supplementary impact assessment studies); and
- ✓ to take appropriate measures and actions to avoid or, when not possible, minimize and mitigate potential impacts (this assessment may results in the need of updating/revising ESMS documentation such as policies, ESMPs and procedures).

In case of changes that may lead to risks or impacts on the HSE components (see Section 7.3.2 for the classification of those changes), the present procedure ensures that HSSE aspects and related risks and impacts are adequately assessed when planning a change to the Project.

7.3 MANAGEMENT OF CHANGE PROCESS

Early identification, communication and management of change are responsibility of all members of the Company and Project. This Management of Change procedure provides the Company with an early warning of conditions. It is fundamental that the potential changes be circulated around the Company as quickly as possible to allow prompt feedback to the change initiator. VLP has to appoint a Change Management Coordinator (CMC).

7.3.1 Identifying a Change

Once a potential change is identified, the initiator shall notify his/her superior via a Change Notice Form (example Form included in Appendix B3), complete the Scope and justification sections of the Change Notice form.

The most usual justifications for changes are listed on the Change Notice Form and include:

- ✓ Legal Change: a change is due to modification in the legal/authorization framework;
- ✓ Permitting Change: a change is required due to National Authority requirements, affecting, for example routing, equipment, construction or design;
- ✓ HSE Change: this change will potentially affect the health and safety of persons or the protection of the environment during fabrication, construction, commissioning, operations and maintenance. It may involve safe working limits being exceeded and risk mitigation measures being inappropriate or less effective, leading to the need for repeat risk assessment;
- ✓ Functional Change: the facilities cannot function, be operated or maintained without the change;
- ✓ Statutory Change: the change is necessary to comply with legislation or Code requirements. The change may be outside the scope of Permit approvals and may require additional notifications and approvals;
- ✓ Commercial Change: allowing for the cost of the change there is commercial benefit in making the change;
- ✓ Schedule Change: the schedule may be at risk if the change cannot be accommodated;
- ✓ Procurement Change: supplier cannot meet previous commitments and obligations; and
- ✓ Security Change: exposure to security risk increased/decreased.

7.3.2 CLASSIFICATION OF CHANGES

Any change will be screened for environmental and social consequences.

All changes referred through the Management of Change procedure are classified on the basis of three classes and the same classification has been adopted for environmental and social aspects. Here below is described the procedure for defining changes on the basis of how they may potentially affect the environment and on the effect that such change may have on related mitigation measures.

Three classes of change are recognized, referred to the change relevance with respect to the environmental and social aspects:

- ✓ Minor Change (Class 1): where the change is judged to have been addressed in the Environmental and Social Impact Assessment (ESIA) process and the change is considered to be consistent with existing permits. The only needed action is to amend the 'Commitments Register' and project Environmental and Social Management Plan (ESMP) to reflect how this change is ultimately resolved;
- ✓ Moderate Change (Class 2): where the change may not have been sufficiently addressed in the ESIA process and the change may be inconsistent with existing permits. The required action is to define the change and newly assess the relevant impacts and mitigations (if required). This may impact on one or more of the MPs and may require additional mitigation measures;
- ✓ Major Change (Class 3): where the change is judged to have not been addressed in the ESIA process and the change is considered to be inconsistent with existing permits. This would be expected to lead to changes to the Environmental and Social Management System (ESMS) and the development of additional mitigation measures. Class 3 changes will be notified to shareholders, appropriate regulators and the Project Lenders.

In case of changes that may lead to risks or impacts on the HSE components, the present procedure ensures that HSSE aspects and related risks and impacts are adequately assessed when planning a change to the Project.
In particular, changes that may imply risk for ES components and related potential impacts may need the support of a specialized contractor and may result in the need of updating the ESIA or in the need of providing supplementary impact assessment studies.

Appropriate measures and actions to avoid or, when not possible, minimize and mitigate those potential impacts may results in the need of updating/revising ESMS documentation (e.g.: relevant policies, ESMPs and procedures).

7.3.3 Routing of the Change Notice

As shown in the following scheme, once a potential change is identified, the initiator shall notify his/her Manager or equivalent and, using the Change Notice Form (example Form included in Appendix B3 to the present Procedure).

The Manager is responsible for passing the Change Notice Form, with associated documentation to the designated Change Management Coordinator within the Project.

The Change Management Coordinator (CMC) shall assign a unique change control number to the change and shall add this unique number to the Change Notice Log, which he shall maintain.

The CMC shall then manage the process and progress of the Change Notice through the various stages until approval/rejection.

At any stage of the review process, any of the reviewers may reject the basis of the change. Under such circumstances the Change Notice shall be returned to the originator for resubmission. In any case, the review and approval time must be minimized and certainly no longer than 5 working days. This requires that the CMC be in full control of the review/approval cycle and expediting responses from the reviewers.

When the CMC has all the relevant feed-back from the review team and approvals, the change shall be passed to the originator and the Managing Director.

It is essential that the CMC remains in charge of both the Change process and all matters pertaining to Change Management.

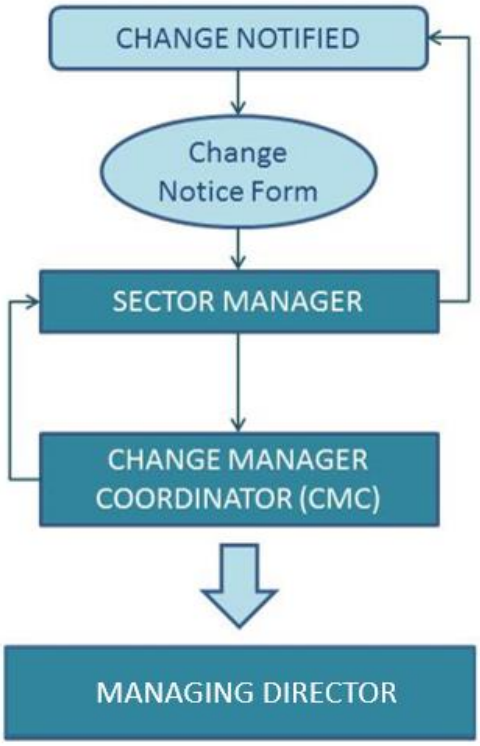


Figure 7.1: Routing of the Change Notice Process Scheme

7.3.4 APPROVAL OF CHANGES

Changes may be:

- ✓ rejected (no action required);

- ✓ approved according to the provisions of the following table.

Table 7.1: Approval of Changes

Rating	Approval
Class 1	HSSE Manager
Class 2	Project or Managing Director (Company Changes with reputational or permitting impacts and Corporate changes)
Class 3	President/Vice Presidents

Note: Final, formal approval of changes shall be carried out in the Director's Meetings

7.3.4.1 Resulting Actions

Following the approval of a change, CMC shall notify all relevant Managing Director or equivalent of the outcome so that work may proceed accordingly.

The relevant Directors shall report the progress of implementation to the Director's Meeting.

The Change Notice Log shall be updated to show the status of each change by the CMC and completed, closed out Change Notices (either approved or rejected) shall, together with the relevant back up information, be archived on Easy.

All changes shall be tracked and monitored for approvals and close out by the QA/QC Manager.

In case of changes that may lead to risks or impacts on the HSSE components, the Management of Change process shall be handled by the HSSE Manager that will report to VLP Management as soon as significant changes are identified, in the context of the management review. Additionally, a review of the possible changes that may have been introduced in the Project shall be carried out on a systematic basis during the periodical management review meeting.

Reporting on the supplementary assessments and related results have to be reviewed by the HSSE Manager and approved by VLP Management.

No work required by a change shall be initiated or a Contractor/Supplier instructed until the Change Notice is fully approved.

Appendix B1

VLP Policies

Doc. No. P0026924-1-H3 Rev. 2 – March 2022

Vientiane Logistics Park
ບໍລິສັດ ວຽງຈັນ ໂລຊິດສະຕິກ ພາກ ຈຳກັດ
VIENTIANE LOGISTICS PARK CO., LTD
ຖະໜົນຄຳແພງເມືອງ (T4), ບ້ານ: ໂພນທັນ, ເມືອງ: ໄຊເສດຖາ, ນະຄອນຫຼວງວຽງຈັນ, ໂທ: +856 21 262 204, ແຟັກ: +856 21 262 205
Khamphaengmeuang Rd, Phonthan Village, Xaysettha District, Vientiane Capital, Tel: +856-21 262 204, Fax: +856-21 262 205

Safety, Security, Health, Environment and Community (SSHEC) Policy

In line with our goal and our vision, VIENTIANE LOGISTIC PARK (VLP) is committed to the safe and socially and environmentally responsible operation of our projects.

This Policy provides a framework which empowers our people to make decisions on behalf of VLP.

VLP's Safety, Security, Health, Environment and Community Policy will be achieved by:

- Compliance with Lao PDR environmental policy, laws, and regulations;
- Minimising the impact from construction and operation activities by applying best practices;
- Proactively reducing greenhouse emissions and minimising pollution to the environment and improve the livelihood of our host communities;
- Engaging local authority and community to effectively contribute to economic and social development plan of relevant communities;
- Identifying workplace hazards and risks to create a safe workplace to our people;
- Providing security management to protect our people and assets, while respecting human rights;
- Setting up SSHEC competence and capability in employees and contractors, to effectively prevent injury and incident;
- Setting measurable objectives and targets to drive continuous improvement in SSHEC performance; and
- Reporting on our SSHEC performance in a manner that is transparent and accurate.

This Policy will be supported by VLP standards and processes that prescribe and define the way VLP operates.

Viengkhone SITTHIXAY

Vice President
June 201

Occupational Health and Safety Policy

Vientiane Logistic Park Park.co ltd is committed to providing logistics services to customers along with occupational health management and good safety for all employees with the following guidelines:

1. Provide safe working conditions Hygienic to prevent injury and illness from work Including the removal of danger and reduce the risk continuously
2. Comply with legal requirements and other requirements occupational health and safety related
3. Support consultation And participation of employees in the operation of occupational health and safety
4. Take care and protect employees from risky work. In particular, work that may be seriously dangerous. And reporting of various incidents
5. Find improvement opportunities for continuous improvement of the management system

The company by implementing this policy and follow up regularly for continuous improvement

Announced on Date

( )

Managing Director

Occupational health objectives and safety 2021

In response to the occupational health policy and safety And the needs of stakeholders Vientiane Logistics Park Co., Ltd. therefore announces occupational health objectives. And safety as follows:

1. No accident at work time.
2. No occupational disease
3. Comply with the law and other requirements related

The company will have a dangerous identification. Assess risks and opportunities and implement various measures including making plans according to the management system to achieve this objective.

Announced on Date

( )

Executive representative

1 PURPOSE

This procedure provides employees with guidance on the process to manage contractors and contracts for provision of Services.

VLP aims to ensure all relationships with Contractors are managed in a fair, equitable, transparent, auditable manner and in line with agreed contractual conditions as well as the organizational values and principles.

Any deviation from this procedure require prior approval from the Procurement Manager.

2 SCOPE

This procedure applies to all VLP employees who are authorised to manage contracts and / or Contractor performance on behalf of VLP. The specific facets of the Contractor Management Framework covered in this procedure are

- Contractor Management (Post Ward) and
- Contractor Performance Management.

Contractor Management (pre-award) procedures are detailed in the Procurement procedures.

3 ACCOUNTABILITIES

VLP employees have the following general accountabilities:

Who	Is Responsible for What
Contract Owner(Requestor) and Job Owner	• Defining specifications, scope of work, and KPI's • Initiating contracts process • Technical pre-qualification / evaluation • Contractor performance management
Contractor Management	• Support to Contract Owner and Contracts in relation to Contractor Engagement and management; • Identify most appropriate contractor • Facilitate physical review of works • Matching actual works with invoicing
Procurement (Contracts)	• Tendering • Commercial pre-qualification / evaluation • Contract finalisation and execution • Contract management, administration and close-out

CONTRACTOR MANAGEMENT

Committee	• Check the goods/services delivery are met to the BOQ and TOR, then issue the Acceptance Certificate (for construction), and Acknowledgement Receipt Goods and Services (for goods and services). • Inspection in each milestones • Verify Contract Management performance • Check the technical term

4 CONTRACTOR MANAGEMENT FRAMEWORK

The policies and principles that govern the management of Contractors are contained in the Contractor Management Framework.

5 PROCESS

Vientiane Logistics Park	**Contractor Management Procurement Procedure**	No:	**Responsible**							
		Amend:								
		Announce:								
		Page: of								
Workflow	**Details of Procedure**		**Procurement (Supply)**	**Contract Owner (Requestor)**	**Contractor Management**	**Acknowledgement Committee**	**Contractor**	**Human Resource Department**	**Safety Department**	**Legal Department**
PLANNING and PREPARATION	**1. Planning and Preparation** 1.1 Shall identify potential Services required during the following 12 to 24-month period. This information will be incorporated into the Contract Plan and will be used to update the Contract Master List. 1.2 Contract Plan and Contract Master List a) Annually compiles and/or updates the Contract Plan. b) Continuously reviews and updates the Contract Plan to reflect actual progress against plan or incorporate any required changes. c) Review the Contract Master List (at least on a 6-monthly basis), in conjunction with the Contract Plan, to ensure all data and information are accurate and current. d) The Contract Plan is used to reflect the plan and schedule for new Contracts, or Contracts that require variation or amendment, whilst the		R	R						

CONTRACTOR MANAGEMENT

	Contract Master List records the status and information related to active contracts. e) The Contract Master List will be used to set reminders for required actions, for Contract Owners, Contractor Management and Contract Holders, for all contracts.								
INITIATION and MOBILISATION	**2. Initiation and Mobilisation** 2.1 Confirm contract owner and contract holder. 2.2 Agree relevant pre-mobilisation and mobilisation requirements with Contractor. 2.3 Provides required documentation and proof and advice requirement for any subcontractors. 2.4 Contract owner, Contractor Management and Committee review provided documentation and proof, and Contract owner and Contractor Management request for sub-contractors. 2.5 Contractor Management and Committee endorse mobilisation and utilisation of subcontractors. 2.6 Contract Owner approves mobilisation and utilisation of subcontractors. 2.7 Procurement Contract finalise and issue Contract Summary. 2.8 Schedules and facilitates kick-off meeting and Performance Review Meetings (PRM's). 2.9 Procurement (Contract) Confirm commencement date with Contractor, via email and then file pre-mobilisation and mobilisation documentation and proof with contract documentation. 2.10 Procurement department notifies HR and Safety to demonstrate the code of conduct policies to the contractor before the start of operation.	R R R R	R R R R R	R R R R	R R	R R			
PERFORMANCE and DELIVERY	**3. Performance and Delivery** 3.1 Confirms the job scope, HSSE requirements, schedule, code of conduct and pricing. 3.2 Accepts the job scope, HSSE requirements, schedule, code of conduct and pricing. 3.3 Issue Work Order 3.4 Accept Work Order 3.5 Monitor execution of the contractor job and intervene with corrective actions where required.		R		S		R	R	
ACCEPTANCE and PAYMENT	**4. Acceptance and Payment** 4.1 Submits claim for completion of work or part thereof.								

CONTRACTOR MANAGEMENT

	4.2 Performs spot-checks or checks upon request from Contract Owner that claims match actual works and complies to requirements.		R			R			
	4.3 Confirm completion of work or part thereof.					R			
	4.4 Submits invoice.		R						
	4.5 Reviews and accepts invoice (Contractor Management support)								
	4.6 Raise / update PR								
	4.7 Converts PR to PO					R			
CLOSE-OUT	**5. Close-out**			R					
	5.1 Confirms termination or expiry of contract.								
	5.2 Contract Owner confirms all work for active PO's received and Contractor Management and Committee confirm all payments made.		R			R			
	5.3 Issues closure letter to Contractor.		R	S					
ITERATIVE / CONTINOUS / ONGOING ACTIVITIES	**6. Iterative/ Continuous / Ongoing Activities**		R						
	• Throughout the duration of any MSA or Contract, a variety of activities may be required to maintain and administrate the contract.	R							
	• These activities will vary depending on the nature and risk of the contract, but could include; i. Contract Amendments / Variations ii. Dispute management iii. Performance Review Meetings iv. KPI and Spend monitoring v. Reporting	R	R	R	R		I		
	• Guidelines related to ongoing activities linked to the different Service Categories are included in Attachment A.	R							

CONTRACTOR MANAGEMENT

5.1 DETAIL ON PROCESS

5.1.1 Planning and Preparation

5.1.2 Initiation and Mobilisation

a. The basic process steps and requirements for getting Services contracts initiated and Contractors mobilised, after the contract has been finalised, are detailed below.

b. Due to the differences in scopes of work / services, nature and origin of Contractors and the duration of MSA's and Contracts, these steps;
   - Will not always, or necessarily be, sequential;
   - May be repeated several times during the contract life cycle; and
   - May not always be applied or be applied to the same level or degree.

c. Process notes for initiation and mobilisation
   - Formal contract, executed by both parties, is required before mobilisation
   - All Contractors to perform on-site work:
     - Contract Owner to formally authorise use of non-VLP procedures to be used by the Contractor prior to the Contractor mobilising
     - Confirmation and authorisation, prior to mobilisation to site, that the plant, equipment and tools to be provided and used by the Contractor for use on site;
       - Are in accordance with relevant VLP standards, procedures and work quality requirements;
       - Are fit-for-purpose and in good working order;
       - Have all as-built safety features in place; and
       - Have appropriate operating and maintenance procedures.
     - The Contractor shall advise whether it will need to engage any sub-contractor(s) for certain aspects of the work, e.g. fuel provision, food supplies, accommodation, outside equipment repairs. Where appropriate, the Contractor shall ensure that all relevant HSSE requirements contained or implied in the Contract documents are passed on to any subcontractor
     - Contractor may also be required to provide confirmation and recording of skills, competencies and licences of all Contractor personnel relative to the work to be undertaken prior to the Contractor mobilising to site
   - PRM's are scheduled and formalised in calendars of required attendees, by Contractor Management within one month of Contract signature, based on the Services. (See guidelines for PRM's in Attachment A).

5.1.3 Performance and Delivery

a. The performance of Services in accordance with the provisions of the contract requires diligent coordination and collaboration from all stakeholders in the process. The basic steps are detail below, but again important to note that the steps;
   i. Will not always or necessarily be sequential;
   ii. May be repeated several times during the contract life cycle; and
   iii. May not always be applied or be applied to the same level or degree.

b. Process notes for performance and delivery

- The Contract Owner;
  - From time to time, identifies the requirement for a specific job and, after confirming that the job is covered in the contract Scope of Work (SoW), agrees the specific job, pricing, HSSE and schedule requirements
  - Raises a WO for each discreet job, prior to job commencement, to formally provide an instruction to the Contractor to commence and agrees the job execution plan and pricing with the Contractor
  - Monitors the actual performance of work, with support from Contractor Management, against the WO, the SoW, the Scope of Contract (SoC), any other applicable Contractual requirements, including KPI's
  - Identifies and rectifies any deviations from agreed expectations in collaboration with the Contractor
  - In cases of repeat or serious non-performance, documents the details of such incidents and informs the Contract Holder accordingly
  - Involves the Contract Holder if any disputes arise with the Contractor. Any communication related to agreed corrective actions are documented by the Contract Owner and saved with the Contract documentation by the Contract Holder.
  - In case of required changes to WO the Contract Owner issues a WO revision to reflect the required changes and to ensure contractual coverage and that payment can be made on timely basis, upon completion of the work
  - Intervenes as appropriate where gaps, concerns and/or negative trends are identified with the performance of the Contractor
  - Ensures any communication related to corrective actions are documented and forwarded to the Contract Holder for formalisation of such communication through email and/or Contract Note and filing such communication with the contract

5.1.4 Acceptance and Payment

Segregation of duty requirements regulates that acceptance of, and subsequent payment for, Goods and Services on behalf of VLP, is to be performed by the Contract Owner.

5.1.5 Close-Out

Depending on the Service Category and the nature of the contract different details may be required to formally close out a contract.

5.1.6 Iterative/Continuous/Ongoing Activities

a. Throughout the duration of any SPA or Contract a variety of activities may be required to maintain and administrate the contract.

b. These activities will vary depending on the nature and risk of the contract, but could include;

   ii. Contract Amendments / Variations
   iii. Dispute management
   iv. Performance Review Meetings
   v. KPI and Spend monitoring
   vi. Reporting

c. Guidelines related to ongoing activities linked to the different Services are included in Attachment A.

6 GLOSSARY

Term	Definition
Approved Contract Value (ACV)	Total, cumulative not to be exceeded value for a specific Contract approved by the appropriate AA
Contract (noun)	General term used for different formats and methods of documenting agreement Contractor to provide Services
Contract (verb)	Activity of formally agreeing with Contractor to provide Services
Contract Holder	Procurement (Contracts) employee responsible for the contract
Contract Kick-off Meeting	First meeting, after Contract execution, between VLP and Supplier to agree contract start-up plans
Contract Management	Administration, management and close-out of the contract between VLP and a Contractor to ensure the contract remains valid and relevant throughout the contract lifecycle
Contract Owner	Responsible person who requires the Services, manages the relationship with the Contractor and will ultimately approve acceptance or rejection of payment for the Services
Contract Plan (CP)	Detailed plan, developed and maintained by procurement (Contracts) to schedule, monitor and execute pre-award contracts activities
Contract Summary (CS)	Summary document created by Procurement (Contracts) detailing all the key basic information in a particular Contract
Contract Variation Notice (CVN)	Formal document detailing agreed changes to an existing Contract
Contractor	General term for third party who provides Services.
Contractor Management	Procurement team accountable for support of Contract Owners in managing and monitoring Contracts and Contractors
Contractor Management Framework	The overarching policy governing the integrated management of contacts and contractors at VLP consisting of Contract Management (pre-and post- award) and Contractor Performance Management
Contractor Performance Management	Management, control, intervention and acceptance of the Contractor performance of Services. Includes managing the relationship with the Contractor in accordance with the contract and VLP requirements
Contract Master List (CR)	Procurement (Contracts) owned and maintained document reflecting the details of all active VLP Contracts
Requestor HOD	Head of the Department
Committee	VLP subject matter experts who supports the process based on their specific knowledge and responsibilities. Includes Human Resources (HR), Safety, Health and Environment (HSSE) and Accounts Payable
Job Owner	Responsible person who requires a specific job to be done by a Contractor, who manages the execution of the work/job and will ultimately accept or reject the work
Key Performance Indicators (KPI)	Contractually agreed measures of Contractor performance and compliance to Contract
Performance Review Meetings (PRM)	Regular, formal meetings between VLP and Contractor to review performance against KPI' and contractual requirements
Qualified Contractor	A Contractor who has successfully passed the required pre-qualification
Qualified Contractor List	List of Contractors who are deemed qualified to provide specific types of Services

CONTRACTOR MANAGEMENT

Service(s)	Actual activity and work performed by a Contractor, in accordance with VLP requirements, as or to be procured by VLP
Procurement (Contracts)	Procurement team accountable for services Contracts and other allocated activities

Abbreviation	**Definition**
ACV	Approved Contract Value
CP	Contract Plan
CR	Contract Master List
CS	Contract Summary
CVN	Contract Variation Notice
KPI	Key Performance Indicators
MSA	Master Services Agreement
PO	Purchase Order
PR	Purchase Requisition
SoW	Scope of Work / Services

CONTRACTOR MANAGEMENT

ATTACHMENT A

GUIDELINES FOR ONGOING CONTRACT AND CONTRACTOR MANAGEMENT ACTIVITY

i. Contract Amendments / Variations

A variety of reasons such as changes in scope of work, execution schedules, time extensions, pricing, entity name changes may necessitate a Contract to be formally amended.

The general process will be for the Contractor, Contract Owner or Contractor Management to identify the need for such a variation to the contract. These changes are then reviewed, in consultation with Procurement (Contracts) and subject to approval from the VLP authorised authority are formally incorporated into the Contract through a mutually agreed Contract Variation Notice (CVN).

All CVN's are prepared and issued by procurement (Contracts) and signed by both parties to the Contract prior to the variation taking effect.

ii. Dispute management

Any disputes between the Contract Owner and the Contractor, that cannot be resolved through regular interaction, is escalated in the first instance to Contractor Management and then Procurement (Contracts). As a last resort the contractual clauses reflecting the agreed dispute resolution conditions will be invoked by Procurement (Contracts). The resolution, or otherwise, of a dispute may also result in a CVN being required.

iii. Performance Review Meetings (PRM's)

PRM's are scheduled and executed in line with the Services allocated to the contract and the general guidelines. PRM's should take place with a pre-determined agenda and in accordance with the following guidelines;

- Chaired by the Contract Owner;
- Prepared, facilitated and minuted by the Contract Holder;
- **Contractor Attendees**: Contractor Representative and any other relevant representatives nominated by the Supplier.
- **VLP Attendees**: Contract Owner, Contractor Management, Contract Holder any other relevant Functional Experts nominated by the Contract Owner.
- The Contract Owner ensures that any required improvement actions are identified, defined, allocated to a single accountable person to deliver and documented in the minutes. Progress against these actions are recorded, in writing, at subsequent PRM's.
- The minutes of PRM meetings are filed with the Contract by the Contract Holder, within two weeks of the PRM.
- Contractor Management will also facilitate an annual, site wide review meeting on contractor performance, lessons learned, alignment between departments etc. This meeting will also focused on HSSE.

iv. KPI and Spend monitoring

The Contractor prepares a scorecard, as and when agreed in the Contract, to be presented and discussed in detail at the PRM's including KPI's.

Procurement (Contracts), in conjunction with Contractor Management, monitors the spend against the Contract to ensure that the Approved Contract Value (ACV) is not exceeded. The Contracts Owner is advised three months prior to the ACV potentially being exceeded, and through consultation with Contractor Management, makes a decision on what the most appropriate action is, including requesting an increase in the ACV through the VLP approvals framework.

CONTRACTOR MANAGEMENT

v. **Reporting**
The Contractor prepares and submits reports as and when agreed in the Contract.

Appendix B2

Mitigation and Monitoring Measures

Doc. No. P0026924-1-H3 Rev. 2 – March 2022

Table B.2.1: Air Quality

Impact to be Addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Increase in vehicle air emissions and its impact on the ambient air quality and sensitive receptors	✓ Paving with concrete or asphalt along the road and container yard and other areas to reduce dust production from roads ✓ Install the speed limit signs, signs to turn the engine off while the vehicles are waiting to transfer goods or visiting for work, and no revving the engine where it can be clearly and easily seen. Speed should be restricted on all access roads especially near residential areas and limited to 20 km/h at the project area; ✓ Enforce compliance with traffic control measures through random checking and addressing non-compliances when these occur Security staff should be trained to assist in this role ✓ Provide cleaners to clean the parking lot and access roads in the project area daily to prevent dust scattering ✓ Periodical maintenance of machinery and equipment to be carried-out to ensure their good working condition, certification and that emissions will meet the required standards. A maintenance schedule for all site equipment releasing emissions will need to be developed and implemented ✓ Trucks transporting dust-generating materials to be covered. ✓ No machinery to be turned on unless in use. Encourage reduced engine idling during on- and off-loading activities; ✓ Wherever possible, low-sulphur fuels should be encouraged and utilised; ✓ Where practicable, upgrade vehicle and equipment fleets with low emission vehicles; ✓ Use of personal protective equipment as appropriate (wearing mask, protective clothing,	Project Company Managing Director Project Company, HSSE Manager Project Company, HSSE Manager Project Company Managing Director Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project	✓ Traffic volumes and vehicle emissions monitoring as required by the Traffic Management Plan ✓ Air Monitoring Programme ✓ Monthly monitoring on Grievance logs and response timeframe ✓ Monthly Spot checks on traffic and vehicle controls ✓ Monthly review of the Maintenance schedule for equipment ✓ Continuous monitoring of personal protective equipment (PPE) Use ✓ Site Inspection Report	✓ Number of exceedances of the required Environmental and Social (E&S) standards / number of samples for air quality monitoring ✓ Number of grievances received relating to air quality per month ✓ Number of non-compliances recorded against Project Standards on traffic and vehicle ✓ Achievement on the maintenance schedule ✓ Non-compliances relating to PPE use and provision ✓ Non-compliances/related to Site inspections.

Impact to be Addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	dust protection and other equipment) in working areas where there are high levels of emissions; ✓ Develop a grievance mechanism and notify all stakeholders of its existence; ✓ Undertake a Traffic Impact Assessment and develop a Traffic Management Plan in order to ascertain the potential air quality implications as a result of increased traffic generation. ✓ As required/suggested in terms of the Traffic Management Plan develop an air quality monitoring plan and implement it accordingly	Company, HSSE Manager Project Company, HSSE Manager Community Liaison Officer Project Company Managing Director, HSSE Manager Project Company Managing Director, HSSE Manager		

Table B.2.2: Noise

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Increase in ambient noise levels impacting on sensitive receptors within the project area and workers on site	✓ Conduct periodic maintenance and the swift repair of noise generating equipment; ✓ Switch all equipment off when not in use; ✓ Provide noise personal protective equipment to all workers working in high noise generating areas and provide trainings in this regard ✓ Develop a grievance mechanism and notify all stakeholders of its existence; ✓ Evaluate and implement the installation of natural barriers at facility boundaries (e.g. vegetation curtains or soil berms) should numerous grievances	Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager, Community Liaison Officer	✓ Noise Monitoring Programme as required by the Noise Management Plan Monthly monitoring on Grievance logs and response timeframe ✓ Monthly review of the Maintenance schedule for equipment ✓ Monthly spot checks on traffic and vehicle controls	✓ Number of exceedances of the required E&S standards / number of noise samples ✓ Number of grievances received relating to noise per month ✓ Achievement on the maintenance schedule ✓ Number of non-compliance recorded against Project Standards on traffic and vehicle ✓ Non-compliances relating to PPE use and provision ✓ Percentage of workforce trained

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	be received and/or noise monitoring indicate the need for this; ✓ Install noise barriers around noise emitting equipment if OHS audits identify the need for this ✓ Optimize internal-traffic routing, particularly to minimize vehicle-reversing needs (reducing noise from reversing alarms); ✓ The use of electrically driven machines should be promoted wherever possible; ✓ Limit the speed of vehicles in the project area so as to not exceed 20km/hour; ✓ Install signage regarding the need to limit the use of hooters and penalisation for the generation of non-essential noise; ✓ The lifting controllers/lifters must be skilled and have specific experiences in lifting to avoid cargo dropping ✓ Develop a Noise Monitoring Plan to be implemented	Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company Managing Director, HSSE Manager	✓ Continuous monitoring of PPE Use ✓ Training records for all workers engaged in lifting activities	

Table B.2.3: Surface and Ground water

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Increased surface run-off from the project site	✓ A retention pond of a volume of 3500 m3 will be developed to collect all stormwater runoff from the site. Discharges from this retention pond will be undertaken periodically and excess water released in the surface channel located on the western side of the Dry Port area. This water will be sampled prior to release. ✓ A hydrological specialist will provide an opinion with regard to the adequacy of the volume of retention	Project Company Managing Director Project Company	✓ Monthly monitoring of excess water releases ✓ Site inspections for stormwater infrastructure	✓ Number of releases versus planned ✓ Non-compliances/related to Site inspections.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	pond for the collection of stormwater and other waste waters during storm events and measures provided to control excess water releases from the site ✓ A Stormwater Management Plan will be developed for this purpose and the ESMMP will be updated to include these measures ✓ Maintain stormwater infrastructure and clear of obstructions so as to minimise flooding and erosion. ✓ The retention pond should be cleared of sediment on a regular basis and prior to the commencement of the rainy season. The frequency of this to be advised by the hydrologist.	Managing Director Project Company Managing Director, HSSE Manager Project Company, HSSE Manager		
Increased risk of erosion due to additional surface water runoff	✓ All drainage structures will be inspected and maintained on a regular basis, including the clearance of channels during the wet season ✓ Areas of water discharge from the site should be visually inspected on a weekly basis during the rainy season and rehabilitated where necessary. If ongoing erosion is observed, then further preventative measures will need to be identified and put in place.	Project Company, HSSE Manager Project Company, HSSE Manager	✓ Site inspections for stormwater infrastructure	✓ Number of erosion incidents
Contamination of surface water bodies as a result of contaminated runoff, release of untreated waste water, spillages and poor waste management practices on site	<u>Contaminated runoff and waste water</u> ✓ Appropriate measures for the storage and management of potentially hazardous materials (hydrocarbons, solvents, lubricants, and any other used during operational phase) such as impermeable pavement, secondary containment, storm water and runoff catchment, spillage traps, bunds, sheds or site-specific combinations of such preventive measures need to be defined through specialist expertise. A Stormwater Management Plan, Pollution Prevention and Control Management Plan and Spill Prevention and Response Plan needs to be compiled for this purpose ✓ Standard pollution control measures should be implemented to minimise pollution incidents. Spill kits will be provided on site and all fuel and other	Project Company Managing Director, HSSE Manager	<u>Contaminated runoff and waste water</u> ✓ Runoff and waste water monitoring programme ✓ Site inspections, include track record of releases ✓ Training records for workers undertaking water sampling ✓ Monthly sampling in downstream water bodies and groundwater bodies <u>Waste management</u>	✓ Number of accidental releases uncompliant with Project standards ✓ Percentage of worker trained on water sampling ✓ Number of exceedances for surface and groundwater against Project Standard ✓ Percentage of workers and visitors trained on waste ✓ Non-compliances/related to Site inspections.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	potential pollutants should be stored in appropriate containers.		✓ Waste training records for workers and visitors	
	✓ Drip trays must be provided in workshop and garage areas. For all activities that could result in an oil spill, drip trays are to be utilised.	Project Company, HSSE Manager	✓ Site inspections on waste management practises	
	✓ Use leak proof containers for the storage and transportation of hazardous materials (including oil/grease) and install a proper drainage and treatment system for collecting and treating the wash off from the hazardous materials handling area	Project Company, HSSE Manager		
	✓ A Spill Prevention and Response Plan and Pollution Prevention and Control Management Plan will be developed	Project Company Managing Director, HSSE Manager		
	✓ A Waste Water Monitoring Plan will be compiled to guide the management of waste-waters from the site			
	✓ Wastewater from bathrooms, canteens, motels, shops and offices will drain into the septic tank system. The overflow from this system will then be transferred via underground pipes to the retention pond.	Project Company, Managing Director		
	✓ When septic tanks are full a licensed waste contractor will be provided to pump out the sludge from the septic tanks and transport this to a licensed waste disposal facility	Project Company, Managing Director		
	✓ Continuously evaluate opportunities for reductions in wastewater discharges throughout the project lifetime. A Water Conservation and Minimisation Plan will be developed to address this.	Project Company Managing Director		
	✓ No unlicensed discharge from the Dry Port will be permitted	Project Company, Managing Director, HSSE Manager		
	✓ All waste water discharges from the site will be tested in terms of water quality in line with the Wastewater Management Plan.	Project Company Managing Director, HSSE Manager		
	✓ A water quality sampling protocol will be developed and implemented prior to all releases from the site			

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	✓ Training will be provided on water sampling to the responsible party. ✓ No unlicensed discharge from the Dry Port will be permitted ✓ No releases from the site will be permitted if the E&S standards are exceeded. VLP will immediately notify the relevant authorities of any non conformances in this regard providing a record of the incident involved. <u>Waste Management</u> ✓ Two plans to guide the management of waste on site will be prepared: A Waste Minimisation, Resource Efficiency and Conservation Management Plan and a Waste Management Plan ✓ Workers and visitors to the site will receive training with regard to waste management practises. ✓ Adequate waste storage facilities will be provided according to waste types. ✓ For hazardous wastes, a specific area inside the waste storage facility or in another location should be planned and appropriately bunded, secured and covered to protect against the elements. Hazardous waste storage areas should be located away from drainage lines. ✓ An adequate number of waste storage containers will be provided for each general waste stream at all of the waste generation areas on the site. ✓ A waste collection schedule is to be developed, dependent on the anticipated volumes to be generated and the capacity of storage facilities on site. The licensed waste contractor will be appointed to meet this schedule for waste removal.	Project Company, HSSE Manager Project Company, HSSE Manager Project Company Managing Director, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager		
Contamination of groundwater bodies as a result of contaminated runoff, release of untreated waste water, spillages and poor waste	✓ See all measures detailed under “Contamination of surface water bodies as a result of contaminated runoff, release of untreated waste water, spillages and poor waste management practices on site”	Responsibilities as detailed therein	✓ See “Contamination of surface water bodies as a result of contaminated runoff, release of untreated waste water, spillages	✓ See “Contamination of surface water bodies as a result of contaminated runoff, release of untreated waste water, spillages and poor waste management practices on site”

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
management practices on site			and poor waste management practices on site"	
Increased risk of flooding	✓ Stormwater drains have been appropriately designed and provided on site to divert stormwater to the retention pond and detailed in a Stormwater Management Plan ✓ All drainage structures will be inspected and maintained on a regular basis, including the clearance of channels during the wet season	Project Company Managing Director Project Company, HSSE Manager	✓ Monthly monitoring of excess water release ✓ Site inspections for stormwater infrastructure and record of remedial actions	✓ Number of actual releases versus planned ✓ Non-compliances/related to Site inspections.

Table B.2.4: Biodiversity

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Impact on fauna	✓ A ban on hunting or animal collection in areas of habitat outside of the Dry Port during the operation of the facility will be put in place. To be effective, signage should present across the site and explicitly mentioned as a requirement of good conduct in the employees contract. ✓ Measures should be put in place regarding the removal of any animal found within the project site during the operation of the facility. A list of professional experts certified to be called upon request should be established and a procedure developing providing the steps to be followed in the case of faunal encounters. All encounters and remedial actions will need to be documented. ✓ Workers and visitors will be encouraged to report any case to the project office and reminded via the provision of adequate signage on site. ✓ Animals that are caught on site need to be released into a suitable habitat as advised by the certified professional expert.	Project Company, HSSE Manager, HR Manager Project Company, HSSE Manager, Ecologist experts Project Company, HSSE Manager Project Company, HSSE Manager, Ecologist experts	✓ Spot-checks by the project team, looking for evidence of hunting or animal collection from the site ✓ Site procedure including evidence of list of suitable animal control officers ✓ Spot checks by project team looking at housekeeping practices to ensure any waste is being disposed of correctly and that the site is kept clean and tidy. ✓ Annual monitoring report to include details of animals found on site and actions taken (e.g.	✓ Non-compliances/related to Site inspections ✓ Number of corrective actions undertook

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	✓ Good housekeeping will be practised on site for the lifetime of the Project with all waste materials disposed of in an appropriate manner to prevent pest-species (e.g., rats / mice) from occurring on the site. These species could also present foraging opportunities for reptiles. If pest species control is required then the method of control employed needs to avoid impacts on other species (e.g. use of targeted trapping, no poison to be used).	Project Company, HSSE Manager	who caught the animal, where it was moved to).	
Project creep into adjacent ecological habitats and the resultant impact on ecosystem services	✓ Environmental awareness training for all site workers will be provided. The training will seek to explain the potential ecological value of areas of habitat outside of the Dry Port project and workers will be reminded of their responsibility to the environment and measures in place to safeguard it ✓ A ban on hunting or animal collection in areas of habitat outside of the Dry Port during the operation of the facility will be put in place. To be effective, signage should present across the site and explicitly mentioned as a requirement of good conduct in the employees contract. ✓ A ban on the collection of firewood as well as other timber and non-timber products from areas of habitat outside of the Dry Port during the operation of the facility will be put in place. ✓ All working areas will be clearly demarked and encroachment into areas of habitat outside of the Project area will be prevented ✓ Site wide speed limits will be enforced and if necessary, dust suppression techniques will be implemented to prevent indirect impacts of dust on habitat areas outside of the Project site.	Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager	✓ Annual monitoring visit by Project staff to check boundaries of the project and determine boundaries of the project. Results of the monitoring visit to be included in annual monitoring report	✓ Compliance of Project footprint with agreed land take
Introduction of alien invasive vegetation	✓ If alien invasive vegetation is identified on site this will be immediately removed. ✓ Development of an Invasive species management plan (ISMP) in conjunction with suitably qualified ecologist	Project Company, HSSE Manager Project Company, HSSE Manager,	✓ Annual monitoring by a suitably qualified ecologist to check to invasive species and if found the ISMP to be followed to ensure their removal	✓ Number of invasive species spotted within the project area and corrective actions taken

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
		Ecologist experts		

Table B.2.5: Historical land contamination

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Legacy issues from historical contamination impacting current activities and monitoring results for the site	✓ Hold discussions with the Department of Railways, as a previous operator of facilities on the land, to identify the potential for historical contamination	Project Company, Managing Director, HSSE Manager	✓ Record of evidence of discussions/communication	✓ Number of corrected action taken and issue resolved

Table B.2.6: Visual

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Change in the sense of place for the neighboring residents as a result of the visual impact	✓ Design mitigation planting to integrate the Project into the existing landscape, to screen it from receptors and to replace vegetation lost through construction; ✓ Minimise operational lighting requirements and avoid light spill; ✓ Ongoing engagement with stakeholders to be held as per the stakeholder engagement plan. Monitor grievances relating to the visual impact received through the grievance mechanism.	Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager, Community Liaison Officer	✓ Monthly monitoring on Grievance logs and response timeframe	✓ Number of grievances received relating to visual impact per month.

Table B.2.7: Traffic

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Increased traffic congestion on existing roads around the project site	✓ Ongoing engagement with stakeholders to be held as per the stakeholder engagement plan. Monitor grievances relating to the traffic impact received through the grievance mechanism ✓ Undertake a traffic impact assessment and develop a traffic management plan to address impacts associated with traffic congestion ✓ Liaise with Department of Public Works and Transport following the results of the Traffic Impact Assessment to discuss appropriate mitigation and any required road improvements that are not currently included in the project design. ✓ Development of a Traffic Management Plan	Project Company, HSSE Manager, Community Liaison Officer Project Company, Managing Director, HSSE Manager Project Company, Managing Director, HSSE Manager Project Company, Managing Director, HSSE Manager	✓ Traffic counts ✓ Road inspection and evaluation of the effectiveness of the measures to prevent congestion including design measures ✓ Surveys undertaken with project transport companies with regard to traffic in the project area ✓ Monthly monitoring on Grievance logs and response timeframe	✓ Number of grievances related to traffic congestion per month. ✓ Effectiveness of congestion mitigation measures ✓ Observable traffic congestion affecting traffic in the local area both in and out of peak hours. ✓ Satisfaction feedback from project transport companies with regard to congestion on roads approaching the Dry Port
Increased potential for road safety incidents	✓ Undertake a traffic impact assessment and develop a traffic management plan to address impacts associated with traffic congestion ✓ Liaise with Department of Public Works and Transport following the results of the Traffic Impact Assessment to discuss appropriate mitigation and any required road improvements that are not currently included in the project design. ✓ Identify and install all necessary warning signage on public roads ✓ A separate lane has been provided along the access road from Friendship bridge junction for pedestrians and cyclists, separated from the access road by a barrier. ✓ Ongoing engagement with stakeholders to be held as per the stakeholder engagement plan. Monitor grievances received through the	Project Company, Managing Director, HSSE Manager Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager Project Company, Managing Director Project Company, HSSE Manager, Community Liaison Officer	✓ Monthly review of driver training records ✓ Random spot check inspections for vehicle speeds, driver licensing and drink / drug driving. ✓ Monthly reports on traffic and transport incidents ✓ Weekly inspection of road condition, signage and traffic management measures. ✓ Monthly monitoring on Grievance logs and response timeframe	✓ Percentage project drivers trained on road safety ✓ Number of traffic / transport incidents per month ✓ Number of corrective actions undertaken related traffic incidents ✓ Non-compliance of driving safety rules ✓ Number of grievances received relating to traffic per month.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	grievance mechanism relating to the traffic impact. ✓ VLP will provide training on internal traffic measures to all workers who are engaged in vehicle movements on site. ✓ Undertake a traffic impact assessment and develop a traffic management plan to address impacts associated with road safety ✓ Ensure that all deliveries to and from the Dry Port are via licensed drivers ✓ Speed limit of 30km/h in the project area, including the access road, to be enforced ✓ Traffic management measures, (e.g speed bumps) to slow Project traffic at appropriate points along access road will be provided ✓ Zero tolerance for alcohol and illegal drugs will be allowed, with spot checks implemented on drivers. ✓ There will be the ongoing monitoring and evaluation of traffic and transport incidents on a monthly basis as required of the Traffic Management Plan. All traffic incidents will be reported and a procedure developed to promote this. If an incident takes place this will be reported on as per the procedure designed for this and corrective actions immediately put in place	Project Company, HSSE Manager Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager, Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager,		
Deterioration of road conditions as a result of increased vehicle movements on roads around the project site	✓ Ongoing maintenance will be undertaken by VLP for Access Road Section A and B. ✓ Ongoing engagement with stakeholders to be held as per the stakeholder engagement plan. Monitor grievances received through the grievance mechanism relating to the traffic impact. ✓ Undertake a traffic impact assessment and develop a specific traffic management plan to address the deterioration of roads in the project area if required ✓ Liaison with Department of Public Works and Transport and with the Department of Roads with regard to road conditions and the results of the	Project Company, HSSE Manager, Project Company, HSSE Manager, Community Liaison Officer Project Company, Managing Director, HSSE Manager Project Company, Managing	✓ Monthly monitoring on Grievance logs and response timeframe ✓ Monthly visual inspection of the Access Road Section A and B conditions	✓ Number of grievances related to road quality per month ✓ Quality of road conditions

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	Traffic Impact Assessment and Management Plan	Director, HSSE Manager		

Table B.2.8: Occupational Health and Safety Assessment

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Occupational Health and Safety Plan	Update of the Framework OHS Management Plan as required to include the following: ✓ State the HSSE commitment by the Project management team; ✓ State Roles and Responsibilities; ✓ Set HSSE Policy and strategic objectives for the Project; ✓ Outline the resources, organisation and documentation of the OHS MP; ✓ Show how the project will attain best practice in risk evaluation and management; ✓ Show how HSSE is included in project planning activities; ✓ Show how HSSE objectives will be achieved and how we will ensure actions are effective; and ✓ Detail the HSSE audit and review process to show when and how actions are carried out.	Project Company, Managing Director, HSSE Manager	✓ Update of document based on significant changes occurred at workplaces or work processes. In case no changes occurred, the document will be reviewed at least every 5 years. ✓ Internal Audits to be undertaken as per the frequency agreed in the OHS Audit Plan	✓ Completion of the implementation of required change ✓ Compliance with OHS Audit Plan
Hazard Identification and Risk Assessment	The following additional management plans will be developed to address and manage specific risks: ✓ Noise Monitoring Plan, to be applicable for all contractors and subcontractors. The plan will establish practical steps manage the noise risk and exposure, in accordance with the international standards. The plan will define the Project's Company's obligation and mitigation measures to reduce the risks associated to noise exposure. It will address requirements to be followed by	Project Company, Managing Director, HSSE Manager	✓ Update of document based on significant changes occurred at workplaces or work processes. In case no changes occurred, the document needs to be reviewed at least every 5 years.	The Hazard Identification and Risk Assessment will be based on following KPIs: ✓ Clearly defined roles and responsibilities for management of risk. ✓ Existence and use of a hazard identification process for recognizing hazards that affect the project and defining their characteristics; ✓ Assessment of hazards (or risks) against a 5x5 risk matrix that incorporate five levels

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	workers such as proper use of PPE. Regular inspections/monitoring and corrective action (if needed) will be scheduled and developed. ✓ Worker Accommodation Management Plan, (please refer to dedicated paragraph). ✓ Emergency Preparedness and Response Plan, to be applicable for all contractors and subcontractors. The plan will establish practical steps to manage emergencies such as fire, earthquake; flooding, and so on. ✓ COVID19 Management Plan to be applicable for all contractors and subcontractors. The plan will establish all procedures to be implemented on site. ✓ Community Health & Safety Management Plan (please refer to dedicated paragraph) ✓ Waste Management Plan (for hazardous and non-hazardous waste) to be applicable for all contractors and subcontractors. The plan will establish all procedures to be implemented for Hazardous Material uses and storage ✓ Traffic Management Plan (please refer to dedicated paragraph)		✓ Internal Audits to be undertaken as per the frequency agreed in the OHS Audit Plan	of consequence and five levels of likelihood of a hazardous event occurring; ✓ Consequence evaluations include consideration on communities, environment, health and safety, financial, production, Project delays; ✓ Recording of risks in a risk register based on their risk rating from high, average, low and acceptable according to their risk rating. The risk register contains information on all identified and critical risks for the Company; ✓ The risk register also contains the identified risk reduction actions or plans to be implemented to reduce the risks to the company. Implementation of risk reduction measures are monitored regularly by appointed role (such as HSE Team, committee); ✓ Recording and monitoring of non-compliances identified through monitoring; and ✓ Implementation of corrective actions established in a timely manner.
OHS Incidents	✓ Ensure that all incidents and near misses are accurately and uniformly reported with details on work-related injuries, accidents, incidents and diseases and corrective actions identified; ✓ Ensure that all incidents and near misses are investigated at an appropriate level; ✓ Ensure that the root causes are identified and lessons are learned and shared with the Project Management team. ✓ Hold contractors and third parties accountable for adhering to the Company's OHS policy and audit contractor systems and procedures. ✓ Hold supervisors/managers accountable for ensuring and promoting a safe and healthful workplace and the protection of the environment within their areas of responsibility, by ensuring that workers are knowledgeable and have access to:	Project Company, HSSE Manager, Workforce Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager Project Company, HSSE Manager	✓ Weekly site walkovers and inspections. ✓ OHS incident and permit registers to be kept and checked on an ongoing basis ✓ On-site clinic records to be kept and checked on an ongoing basis ✓ Improve the awareness and encourage the notification of such event which may cause damage to workforce Health and/or environment and or equipment.	✓ Number of OHS incidents recorded. ✓ Number of OHS toolbox talks and training conducted. ✓ Status of required OHS certificates and work permits. Investigation and record of: ✓ Lost Work Day Case (LWDC); ✓ Medical Treatment Cases (MTC); ✓ First Aid Case; ✓ Near misses; ✓ Incidents; and ✓ Unsafe acts.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	- Publications on the latest applicable laws and regulations - Health, safety and environment rules and safe work standards - Emergency response procedures - Environmental protection requirements ✓ Ensure the safety and suitability of work equipment for the purpose for which it is provided; properly maintain the equipment, irrespective of how old it is; provide information, instruction and training on the use of equipment; and protect employees from dangerous parts of machinery.	Project Company, HSSE Manager		
Occupational Health and Safety Training	Appropriate training relevant to the knowledge of risks and mitigation measures, HSSE policies, processes, objectives and targets. All personnel (including subcontractors) are required to take part in this process. Requirements for HSSE training and assessment are defined in the Training Matrix and/or procedure based on job function and activities. The following documentation will be required: ✓ Development of a Training Matrix; and ✓ Development of a Training Plan. Training shall be documented, and Contractor shall maintain copies of all relevant certificates. ✓ Requirements of applicable law, HSE best practices for engineering and construction activities; ✓ Company's general HSE requirements and HSE and HSEMS procedures and policy; ✓ Competence assessment for HSSE Critical activities; ✓ Training for line managers and managers responsible for planning, monitoring, checking or carrying out Work; and ✓ Training for personnel carrying out Hazardous operations and specialized.	Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager	✓ Internal Audits to be undertaken	✓ Valid training certificate records in place for all workers; ✓ Frequency of communications related to HSE awareness to be demonstrated; ✓ Completion of HSE Meeting against scheduled ✓ Evidence of sharing of HSE Meeting Minutes; and ✓ HSE training performed according to Training Plan. ✓ Following the internal audits, taking immediate measures to mitigate and develop an action plan to eliminate the causes of HSE policy violations (non-conformities) revealed.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Personal Protective Equipment	Appropriate Personal Protective Equipment (PPE) shall be provided to personnel based on the risks related of the activities to be performed.	Project Company, HSSE Manager, HSSE Executive	✓ Continuous monitoring of PPE Use ✓ Training records on PPE	✓ Non-compliances relating to PPE use and provision ✓ Percentage of workforce trained
Emergency and Response Plan	An Emergency Response Plan (ERP) should be updated to cover Project activities. The ERP sets principles of emergency response and crisis management to be applied by the Project and establishes the approach to planning and manage emergency response, including: ✓ roles and responsibilities; ✓ structure of emergency response organisation; ✓ legal requirements; ✓ emergency equipments; ✓ Company requirements; ✓ high-level emergency procedure overview; ✓ resources required; and ✓ monitoring, control, reporting and performance assessment. All Contractors are required to develop and implement emergency response plans for the contract, covering management of incidents at all locations where work is performed.	Project Company, Managing Director, HSSE Manager	✓ Review of the plan in case of major changes.	✓ Percentage of workforce trained ✓ Worker awareness of ERP ✓ Number of emergency drills undertaken

Table B.2.9: Social Assessment

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Land acquisition and resettlement	Supplementary actions to address the gaps identified in the Project's previous land acquisition process are	Project Company, Resettlement	✓ Internal monitoring to be conducted as per monitoring	✓ LRP developed and implemented. ✓ Registers developed for tracking compensation payments and grievances

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	further detailed in the Land Review study. Key actions required include the below, among others: ✓ Expand current Resettlement Coordinator role to manage the resettlement close-out activities going forward, with responsibilities to include coordination with relevant parties, and tracking compensation payments. ✓ Develop a register to track all outstanding compensation payments, including the current status, schedule of remaining payments, amounts paid to date, amount to be paid, and cases under negotiation. ✓ In collaboration with the Resettlement Committee, develop consultation strategy to minimize grievances concerning compensation payments and clarify key information such as valuation rates used. ✓ Develop LRP, for identification of livelihood restoration measures that are appropriate for the Project-Affected Persons (PAPs). The LRP will describe the overall resettlement impact, compensation methodology and livelihood restoration programmes tailored for the priorities and needs of the PAPs. ✓ Develop and disclose a formal resettlement grievance mechanism and maintain a grievance register to track the resolution and outcomes of all grievances received. ✓ For the access road site, commence quarterly monitoring of the PAPs' socioeconomic status following resettlement, looking at indicators including current status of PAPs with regards to: Standard of housing; Livelihood activities; and Status of vulnerable PAPs, among others. The implementation of the resettlement management and monitoring activities as identified in the Land Review will be continuous throughout the operational phase. If additional land acquisition and resettlement needs are identified, for instance for associated infrastructure, a resettlement policy framework will be developed to guide implementation in line with IFC PS5 requirements.	Committee, HSSE Manager	arrangements detailed in the LRP.	✓ Consultation strategy developed and implemented ✓ Compensation and livelihood restoration support delivered as per schedule established in the LRP. ✓ Quarterly Monitoring commenced for access road PAPs

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Labour management & risks of worker exploitation on human rights and Project reputation	The Human Resources (HR) policy will be updated for the operational phase, with ongoing implementation and monitoring activities taking place throughout to address potential risks associated with worker rights. The following additional management plans will be developed: ✓ Labour management plan, to be applicable for all contractors and subcontractors present on site. The plan will establish practical steps for how Project workers are to be managed, in accordance with the HR policy commitments. The plan will define the Project's Company's obligation and right to monitor and audit contractors' labour management, as well as define how labour requirements will be included in contractual terms. It will address requirements on worker contracts, the worker grievance mechanism to be in place, working hours and overtime, regular inspections/monitoring and corrective action planning of working conditions and labour rights, monitoring of child labour, and other HR regulations. ✓ In addition, the workers' grievance procedure will be updated to indicate timeframes for acknowledgement and resolution of worker grievances received. Subsequently, the procedure will be disseminated to all workers on site as part of the induction training and posted in various worker locations including offices and canteens. Emphasis will be placed on the lack of retribution or punishment for any worker that submits grievances, and the ability to submit claims in an anonymous or confidential manner. Grievance boxes will be placed throughout site to facilitate easy and private submission of claims. The Contractor will develop a retrenchment/demobilization plan one year before completion of decommissioning works, to anticipate any significant job losses resulting from completion of the Project. The plan will be prepared and implemented in line with national law and good industry practice and based on the principles of non-discrimination and will reflect consultation with workers and appropriate governmental agencies if applicable. This plan will include: The reasons why job losses are necessary; The	Project Company, HR Manager Project Company, Managing Director	✓ Weekly labour monitoring to verify adequate terms of employment and working conditions on site. ✓ Monthly review of worker grievance log.	✓ Number of worker grievances received. ✓ Number of worker grievances resolved in timely manner. ✓ Number of worker protests, strikes or incidents recorded. ✓ Number and types of labour non-compliances identified through weekly monitoring. ✓ Number of labour corrective actions implemented in a timely manner. ✓ Number and types of training delivered to workers.

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	timescale and when notice of employment contract end will be given; How broader community impact issues are to be addressed; and Consultation process proposed with the workforce and the local authorities. If worker accommodation will be used, a Worker Accommodation Management Plan will be developed for design, management and regular monitoring of worker accommodation facilities in line with requirements of the IFC Guidance Note on Worker's Accommodation Processes and Standards.			
Social conflict between local communities and Project workers and/or security staff	✓ A formal community grievance mechanism that is in line with IFC PS1 requirements will be developed as part of the Project's Stakeholder Engagement Plan (SEP) and disclosed to external stakeholders, for receipt of complaints including regarding Project worker interactions. ✓ Additional commitments will be added to the worker code of conduct on respecting local populations and their norms and cultural heritage beliefs and sites; de-escalation of conflicts; not engaging in illicit behaviour and crime; prohibition of hunting, fishing and gathering of wild crops; and maintaining a safe and peaceful environment within local communities. This will be written in plain language in Lao, signed by each worker to confirm their acknowledgment, and refresher training provided. ✓ All contractors and subcontractors will be required to have similar codes of conduct, policies and training programmes for their workforces or disseminate the Company's one. A Security Management Plan will be developed and implemented by the Project Company that is aligned with the UN Voluntary Principles on Security and Human Rights and the IFC's 2017 Good Practice Handbook 'Use of Security Forces: Assessing and Managing Risks and Impacts'. This plan will include but not be limited to: ✓ Roles and responsibilities of Project Company, contractors and security provider ✓ Procedures to undertake due diligence on security firms prior to awarding contracts, to check for past claims related to human rights abuses	Project Company, Community Liaison Officer, HSSE Manager Project Company, HR Manager, HSSE Manager Project Company, HSSE Manager Project Company, Managing	✓ Grievance registers ✓ Worker training registers ✓ Security incident log	✓ Number of external or internal grievances received regarding Project worker behaviour or GBV ✓ Number of training sessions on code of conduct and GBV ✓ Number of workers signed up to updated code of conduct

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	✓ Hiring requirements for guards including criminal background checks ✓ Use of force policies and specialised training of security staff in conflict resolution ✓ Monitoring and community grievance resolution procedures ✓ Management of relations with and oversight of contracted gendarmerie ✓ Equipment and types and frequency of training to be provided to guards A Code of Conduct for Security Personnel will also be developed with commitments to respecting human rights and local cultural norms, de-escalation of conflict and proportionate use of force only where necessary. To mitigate risks of gender-based violence (GBV), the following measures will be implemented: ✓ Contractor policies and contracts will be required to include clauses on GBV, for example requiring their staff to sign codes of conduct. ✓ Periodic mandatory training on GBV will be delivered to all workers, including contractors and subcontractors, addressing definitions of GBV, roles and responsibilities of all actors, and GBV incident reporting mechanisms and accountability structures. ✓ The grievance mechanism process for both workers and external stakeholders will enable confidential and/or anonymous submission of claims relating to GBV. ✓ On the Project site, adequate lighting will be installed throughout the site, including around latrines and access routes. Separate, lockable latrines for female workers will also be installed.	Director, HSSE Manager Project Company, Managing Director, HSSE Manager Project Company, Managing Director, HSSE Manager & Procurement executive		
Increase in communicable disease incident rates	A community health and safety (CHS) plan will be developed that is aligned with Lao laws and WB EHS guidelines and best international practices. It will collate all mitigation measures listed in other management plans that are relevant for CHS, and also cover liaison	Project Company, Managing Director, HSSE Manager	✓ Health & safety incident logs ✓ Worker training register	✓ Number of Covid-19 and other communicable diseases identified in the workforce

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	with local medical institutions for disease prevention and monitoring including for Covid-19. A Project-specific Covid-19 management plan will be developed with actions to be taken during the Covid-19 pandemic in line with international best practices and IFC guidelines[1]. Brochures, notice boards and toolbox talks will be used to raise staff awareness of measures to be taken including personal hygiene, social distancing, and mask and disinfectant use. Group meetings will be conducted in line with guidance provided by the IFC/EBRD briefing note on stakeholder engagement during the Covid-19 crisis (April 2020).[2] The following measures will also be implemented: ✓ Medical check-ups during the recruitment process, monitoring of infectious diseases within workforce and periodic medical check-ups ✓ The workers are provided with training on health, hygiene and infectious diseases. ✓ Identify opportunities to support local public health campaigns that focus on prevention of communicable and vector-borne diseases. ✓ Project staff residing in worker accommodation will be provided with sufficient sanitary and first aid/medical supplies, in line with the IFC Guidance Note on Worker's Accommodation Processes and Standards. These will be detailed in the Worker Accommodation Management Plan	Project Company, Managing Director, HSSE Manager Project Company, HSSE Manager		
Economic benefits	✓ Where feasible, retain the personnel employed during construction for the operation of the site. ✓ Develop a Local Recruitment Plan to supplement the existing recruitment policy and procedure, maximise job opportunities for local residents, maintain a fair and transparent local recruitment process, and facilitate skills development of the local workforce. The plan will specify how available job opportunities will be disclosed to local community members, provisions to facilitate	Project Company, HR Manager Project Company, Managing	✓ Worker training register ✓ Workforce statistics	✓ Number of local community members employed ✓ Number of training and skills development sessions conducted for local workers

1 https://www.ifc.org/wps/wcm/connect/2ab83243-0b50-4d80-a007-f96c4b589634/Tip+Sheet_Interim+Advice_OHS_COVID19_April2020.pdf?MOD=AJPERES&CVID=n7R2Q0P

2 https://www.ebrd.com/covid19-consultation.pdf

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
	recruitment and upskilling of women and disabled candidates, and initiatives to encourage women and disabled candidates to apply for Project roles. ✓ Provide all on-the-job and technical training free of charge to workers employed by the contractors and subcontractors. ✓ Local businesses in the area will be given prior notice at least one month in advance concerning the end of the operational phase and the number of workers who will be present on-site throughout the decommissioning phase, so that they can accordingly prepare their commercial activities and stock for the upcoming reduction in customer numbers.	Director, HSSE Manager Project Company, HSSE Manager Project Company, Procurement Executive, HSSE Manager		

Table B.2.10: Cultural Heritage

Impact to be addressed	Management and Mitigation Measures	Responsibility	Monitoring	KPI
Operational Phase				
Impacts on cultural heritage sites	✓ If any Project activity is anticipated to have temporary or permanent impact on cultural heritage, develop a cultural heritage management procedure to minimise disruptions and damage to the extent possible, in coordination with local authorities.	Project Company, Managing Director, HSSE Manager	✓ Community grievance log	✓ Number of cultural heritage sites affected or disturbed by Project activities, and number of relevant grievances received

Appendix B3

Change Notice Form

Doc. No. P0026924-1-H3 Rev. 2 – March 2022

CHANGE NOTICE FORM (EXAMPLE)

Document issued By:	**Date**	**Reference Doc. No.**
Scope and Justification: Safety/Environment, Functional, Constructability, Statutory, Commercial, Procurement, Other		

Class 1	**Class 2**		**Class 3**	
	Responsibility (Signature)	**Comments Y/N** (if applicable)	**Cost** (EUR million)	**Schedule Effect** (weeks)
Construction				
Project Control Office				
Project Controlling				
Engineering				
Logistics				
Operations				
Permitting				
Communications				
Procurement				
Legal				
Risk				
QA/QC				
HSE				
HR				

Approved/Rejected* (Work may/may not proceed) **Project Director …….** **Date ……..**	**Approved/Rejected*** (Work may/may not proceed) **Deputy Director Engineering…….** **Date ……**
Approved/Rejected* (Work may/may not proceed) **Deputy Director Construction .....** **Date ……...**	**Approved/Rejected*** (Work may/may not proceed) **Deputy Director Permitting ..……..** **Date ……**
Approved/Rejected* (Work may/may not proceed) **Operations Director ……** **Date ……...**	**Approved/Rejected*** (Work may/may not proceed) **Communications Director……** **Date ……...**
Approved/Rejected* (Work may/may not proceed) **Financial Director ……** **Date ……...**	**Approved/Rejected*** (Work may/may not proceed) **Technical Director ……** **Date ……...**
* Delete as appropriate	

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