Cold Solutions Rwanda Limited (CSRL)

Proposed Temperature Controlled Storage Facility in Kigali City, Rwanda

Final ESIA Report

17 April 2023

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17 April 2023

Proposed Temperature Controlled Storage Facility in Kigali City, Rwanda

ESIA Report

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ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
ALARP	As low as reasonably practicable
ALU	African Leadership University
AUCA	Adventist University of Central Africa
BID	Background Information Document
BMS	Building Management System
BRCGS	British Retail Consortium Global Standards
CBD	Convention on Biological Diversity
CCSEAF	Cold Chains Solutions East Africa Fund LP
CFCs	Saturated Chlorofluorocarbons
CIA	cumulative impacts assessment
COD	Commercial Operation Date
CoK	City of Kigali
COVID-19	Coronavirus Disease 2019
CSRL	Cold Solutions Rwanda Limited
DDS	District Development Strategy
DFI	Development Finance Institution
ECO	Environmental Control Officer
EEE	Electrical and electronic equipment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EPC	Engineering, Procurement and Construction
EPPRP	Emergency Prevention, Preparedness and Response Plan
ERM	Environmental Resources Management Consulting East Africa Limited
ESG	Environmental and Social Governance
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMS	Environmental and Social Management System
FDA	Food and Drug Authority
GBVH	Gender-based violence and harassment
GDP	Good Distribution Practices
GHG	Greenhouse gas
GIS	Geographical Information System
GoR	Government of Rwanda
GPS	Global Positioning System
GRM	Grievance redress mechanism
GSP	Good Storage Practice

GWP	Global Warming Potential
HACCP	Hazard Analysis Critical Control Point
HFCs	Hydrofluorocarbons
HH	Households
HR	Human Resources
IAPs	invasive alien plant species
IFC	International Finance Corporation
ILO	International Labor Organisation
ISS	Integrated Safeguards System
IUCN	International Union for Conservation of Nature
KII	Key Informant Interviews
KSEZ	Kigali Special Economic Zone
KYC	Know Your Customer
LEED	Leadership in Energy and Environmental Design
LL	Liquid Limit
LPG	Liquified Petroleum Gas
MoE	Ministry of Environment
NAEB	National Agriculture and Export Board
NIRDA	National Industrial Research and Development Agency
NISR	National Institute of Statistics Rwanda
NST	National Strategy for Transformation
ODP	Ozone Depleting Potential
OHS	Occupational Health and Safety
OSC	One Stop Centre
PEZ	Prime Economic Zone
PI	Plasticity Index
PIR	polyisocyanurate
PM	Project Manager
PPE	Personal Protective Equipment
PPV	peak particle velocity
PS	Performance Standards
PV	Photovoltaic
PVC	Polyvinyl Chloride
QSR	Quick Service Restaurant
RAPEP	Rwandan Association of Professional Environmental Practitioners
RDB	Rwanda Development Board
REMA	Rwanda Environment Management Authority
RICA	Rwanda Inspectorate, competition and consumer protection authority
RLMUA	Rwanda Land Management and Use Authority
RMS	Rwanda Medical Supply

RPPC	Rwanda Printing and Publishing Company
RURA	Rwanda Utilities Regulatory Authority
RWF	Rwandan Francs
SEP	Stakeholder Engagement Plan
SEZ	Special Economic Zone
SEZAR	Special Economic Zone Authority of Rwanda
SQF	Safe Quality Food
STD	Sexually transmitted disease
TCSF	Temperature-Controlled Storage Facility
TMP	Traffic Management Plan
TVET	Technical and Vocational Education and Training
U-HFCs	Unsaturated Hydrofluorocarbons
UNFCCC	United Nations Framework for Convention on Climate Change
UR-CST	University of Rwanda College of science and Technology
VOCs	Volatile Organic Compounds
VTCs	Vocational Training Centres
WBG	World Bank Group
WHO	World Health Organisation
WMP	Waste Management Plan
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

Project: Environmental and Social Impact Assessment (ESIA) Project Report for Proposed Temperature Controlled Storage Facility at the Kigali Special Economic Zone (KSEZ), situated in Munini Village, Masoro Cell, Ndera Sector, Gasabo District on the outskirts of City of Kigali (CoK).

Project Proponent: Cold Solutions Rwanda Limited (CSRL)

ESIA Consultants: Environmental Resources Management Consulting East Africa Limited (ERM)

Project Description: The Project entails the construction, operation and decommissioning of a Temperature-Controlled Storage Facility (TCSF) of up to 12,000 m^2 cold storage facility with end-to-end logistics capable of storing approximately 10,000 pallets. Key components of the Project include:

- Warehouse facility with different refrigeration temperature zones. Refrigeration technology will be ammonia, Glycol or CO_2-based.
- Supporting facilities including plant room, chiller area, power system (roof-top solar), office space, guardhouses, and pallet repair areas.
- 10 docking bays for loading and un-loading of goods.
- Small wastewater treatment plant (WWTP) to treat cooling water effluent to national discharge standards and recycle 60% back into the cooling system.
- An integrated power system comprising roof-top solar Photovoltaic (PV) system and a backup diesel-powered generator in case of grid outages (to service 2-3 MW power demand).
- End-to-end customer logistics serviced by 12 refrigerated vehicles.

A detailed description of the Project components is presented in Chapter 4 of this report.

This ESIA Project Report has been compiled as part of the Rwandan Environmental Impact Assessment (EIA) Process in accordance with regulatory requirements stipulated in Rwanda's N°003/2008: Ministerial Order relating to the requirements and procedure for environmental impact assessment The ESIA has also been undertaken in line with the requirements of the International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability (2012) and the Integrated Safeguard System of the African Development Bank (AfDB).

ESIA Process

The objectives of the ESIA are to:

- Identify all potentially significant adverse E&S impacts of the Project and recommend measures for mitigation.
- Gather baseline data (e.g., through stakeholder engagement) to inform the assessment of impacts and to monitor changes to the environment as a result of the Project as well as evaluate the success of the mitigation measures implemented.
- Recommend measures to be used to avoid or reduce the anticipated negative impacts and enhance the positive impacts.
- Prepare an ESIA Project Report compliant to the Environmental (Impact Assessment and Audit) Regulations of 2018 and 2019, detailing findings and recommendations for review by the Rwanda Development Board (RDB).

The proposed Project was screened to determine the need to undertake an ESIA based on the project characteristics; whether the project components and activities fit the lists the projects that must undergo an EIA as per Ministerial order no.001/2019 establishing the list of projects that must undergo EIA, instructions, requirements and procedures to conduct EIA; and the International Finance Corporation (IFC) Performance Standards (PS) on E&S Sustainability, 2012.

A reconnaissance site visit was carried out on 2nd November 2022. The purpose of the site visit was to familiarise the Project Team with the Study Area and to collect primary E&S baseline data to inform the required level of assessment.

Based on the site reconnaissance and project component review, it was concluded that an ESIA resulting in the preparation of an ESIA Project Report would be required for the proposed Project. The screening was based off the Ministerial order No.001/2019 (Annex 1), which establishes the list of projects subject to the ESIA process. This includes: *"warehouses and storage facilities of perishable agricultural commodities occupying an area of half a hectare (1/2 ha) and above, industries, warehouses for storage of hazardous items or perishables, warehouse with total floor area exceeding 1500m^2 and plot size exceeding 1000m^2".*

Data Collection: Various data collection methods were used as follows:

Remote Sensing and GIS Analysis

Remote sensing and Geographic Information Systems (GIS) was undertaken and ground-truthed in the field by the consultants at the time of the site visit. Remote sensing was based on available satellite imagery of the Project Site. The main E&S aspects identified include: land use, vegetation cover, surface water flow, ground water direction and topography.

Document Review

A literature review was undertaken based on the findings of the reconnaissance process, which involved reviewing legislation, policies, the County Integrated Development Plan, and previous studies carried out in the area to determine the baseline setting of the Project area. The desk-based study also included the development of fieldwork tools, fieldwork schedules as well as the approach to stakeholder engagement as outlined in the Stakeholder Engagement Plan (SEP).

Site Visits

A site investigation was undertaken on Wednesday 2nd November 2022 during which detailed E&S baseline data was collected and preliminary stakeholder engagement was undertaken. Data was collected through:

- Sharing the Project's Background Information Document (BID, and presented as Appendix D) to identified formal stakeholders and requesting them to share their views/ comments on the proposed Project;
- Key Informant Interviews (KII) especially with the technocrats of the relevant institutions; and
- Site walkovers.

Photography and Global Positioning Systems (GPS) were used to record the salient features and baseline conditions at the Project sites and surroundings environment.

Impact Assessment

The purpose of impact assessment is to identify and evaluate the significance of potential impacts on identified receptors and resources according to defined assessment criteria and to develop and describe mitigation measures that will be taken to avoid or minimise any potential adverse effects and to enhance potential benefits.

The impacts of the proposed Project were identified based on the findings of stakeholder consultation, the existing baseline conditions, the proposed Project activities and professional knowledge of the consultants. Impacts are first distinguished as either positive or negative (Chapter 9 of this Project Report). The cross-sectoral issues and aspects are: health; safety; air quality, especially dust; waste management; social aspects particularly labour recruitment and management; infrastructure, and utilities.

Stakeholder Engagement

Stakeholder Engagement ensures that the views and concerns of stakeholders (including the community) are incorporated as early as possible into the project development (i.e., at the planning, implementation, and operations phase), to minimise any potential unexpected opposition to the proposed development, and to incorporate the views of stakeholders into the design process.

The main objective of the Stakeholder Engagement process is to inform stakeholders and the public about the proposed Project and its likely effects, and in turn incorporate their inputs, views and concerns into project planning. A summary of stakeholder engagement conducted during the ESIA process is presented in the table below. (Further detail is included in the SEP)

Table 1 List of Stakeholders

Stakeholder Group	Stakeholders consulted	Relevance	Date of Consultation
National Regulatory Bodies Government Agencies	Rwanda Environment Management Authority (REMA)	The aim was to conduct a stakeholder engagement meeting with the relevant departments at National Level and determine whether further engagements are required at the national level.	02/11/2022
	RDB		03/11/2022
	National Agriculture and Export Board (NAEB)	NAEB is the Institution supporting export of non-processed and processed foods. They provide pack houses and cold rooms. The aim was to understand the current cold storage status in Rwanda.	03/11/2022
	Food and Drug Authority (FDA)	Stakeholder engagement was to understand whether CSRL requires any prior licensing from FDA for processed foods and RICA for unprocessed food as a cold storage facility other than food storage and processing international standards.	03/11/2022
	Rwanda Inspectorate, competition, and consumer protection authority (RICA)		02/11/2022
	RSB	The aim of the engagement was to understand the requirements, standards designed for a cold storage facility and different services offered by RSB such as quality testing certificates.	02/11/2022
Prime Economic Zone (PEZ) Ltd	PEZ management	The objective engagement was to understand the process of land acquisition of identified project plots, zoning of the KSEZ, infrastructure available, capacity of services available at KSEZ, whether project activities are acceptable in and around the designated project area.	02/11/2022
Rwanda Medical Supply (RMS) Ltd	RMS management	The aim was to understand the potential demand for storage of pharmaceuticals in Rwanda and whether the capacity is sufficient.	03/11/2022

Potential Impacts and Mitigation Measures

The Physical, Biological and Socio-economic impacts identified for the construction and operation phase that have been identified and assessed in the ESIA, are summarised in the table below:

Table 2 Assessment of Project Impacts

Impact	Significance (pre-mitigation)	Residual Impact
Construction Phase		
Local Air Quality	Minor Negative	Negligible
Noise Environment and Vibrations	Minor Negative	Minor Negative
Water Resources	Minor Negative	Negligible
Biodiversity	Minor Negative	Negligible
Waste and Effluent	Moderate Negative	Minor Negative
Employment, Procurement, and the Economy	Positive Impact	Positive Impact
Disease Transmission	Minor Negative	Minor Negative
Traffic	Moderate Negative	Minor Negative
Labour and Working Conditions (including Occupational Health and Safety)	Moderate Negative	Minor Negative
Community Health, Safety and Security	Minor Negative	Negligible
Operational Phase		
Air quality	Minor Negative	Negligible
Climate Change	Minor Negative	Negligible
Waste and Effluent	Moderate Negative	Minor Negative
Employment, Procurement, and the Economy	Positive Impact	Positive Impact
Traffic	Moderate Negative	Minor Negative
Labour and Working Conditions (including Occupational Health and Safety)	Moderate Negative	Minor Negative
Community Health, Safety and Security	Minor Negative	Negligible

All the identified impacts are either of moderate or minor significance even prior to the application of the appropriate mitigation measures. With proper implementation of the recommended mitigation/management measures, the significance of the residual impacts is all reduced to a minor or negligible significance, which is mainly attributed to the fact that:

- It is a small-scale project.
- The project site is located within an industrial park where a number of other industrial developments are planned and are being constructed.
- The project site is located within the Kigali metropolitan area, with local community members already used to construction activities as well as urban environment.
- The developer is committed to good environmental and social governance.
- The Project Proponent is in the process of securing the land on a willing seller-willing buyer basis from Rwanda Printing and Publishing Company Ltd (RPPC), in accordance with the requirements of this Act.
- Given the above early planning and approval process was completed, there are no settlements in or the immediate surroundings of the Project Site. The Project will therefore not result in any displacement (neither physical, nor economic).

- There are no sensitive environmental or social resources present at the Project Site that would constrain the Project layout, thus making the Project a low risk with respect majority of the impacts.

An Environmental and Social Management and Monitoring Plan (ESMMP) has been prepared as an output of this ESIA process, to ensure that social and environmental impacts and risks identified during the ESIA process are effectively managed during the construction and operations of the Project. The ESMMP specifies the mitigation and management measures to which CSRL and the Contractor are committed and provides for the organizational capacity and resources to implement these measures.

The ESMMP also shows how the implementation of mitigation and management measures will ensure Project compliance to applicable laws and regulations within Rwanda, as well as the requirements of international good practice and lender requirements.

ERM is confident that every effort will be made by CSRL to implement the mitigation measures as recommended in this report. In summary therefore, and based on the findings of this assessment, ERM finds no reason why the Project should not be authorised, contingent on the mitigations and monitoring for potential environmental and socio-economic impacts are implemented, as outlined in the ESMMP.

1. INTRODUCTION

1.1 Overview

Cold Solutions Rwanda Limited (hereafter referred to as the Project Proponent / CSRL), appointed Environmental Resources Management Consulting East Africa Limited (ERM) to act as independent environmental and social (E&S) consultants to undertake the Environmental and Social Impact Assessment (ESIA) for the construction and operation of the proposed TCSF and associated logistics operations, in the Kigali Special Economic Zone (KSEZ), Rwanda (hereafter referred to as the Project). The KSEZ is promoted by the Prime Economic Zone Limited (PEZ). More specifically, it is situated in Munini Village, Masoro Cell, Ndera Sector, Gasabo District on the outskirts of CoK, 4 km from the Kigali International Airport and 12 km from the City centre along the Kigali-Kayonza National road) (Table 1-1 and Figure 1-1).

ERM is a global E&S sustainability consultancy firm with the main East African Region Office in Nairobi, Kenya. ERM subcontracted Earth Systems, a Rwanda based consultancy firm to enhance the local content of the E&S consultancy team as well as manage the submission of the ESIA report to the local (Rwandan) authorities.

ERM engaged Earth Systems as the 'Sub-Consultant Team' to assist locally. Earth Systems has been operating in Africa since the early 2000's and has completed a number of projects in Rwanda, Uganda,Tanzania, Senegal, Mali and Guinea. Earth Systems has a proven track record working on various projects and has worked on all project stages. As part of the Consultancy Team Earth Systems has extensive experience with projects that require a detailed understanding of the environmental and social policies, performance standards and guidelines of the World Bank Group (WBG) / IFC. Earth Systems is a licensed EIA consultant with the REMA and the Rwandan Association of Professional Environmental Practitioners (RAPEP), registration number RAPEP/EA/160. The proposed Project will be located on plot 102344976 with a UPI of 2487 of the KSEZ. CSRL is in the final stages of contract negations with RPPC on the purchase of the required Project plot.

The Project entails the construction and operation of an up to 12,000 m^2 cold storage facility with end-to-end logistics capable of storing approximately 10,000 pallets. Key components of the Project include:

- Warehouse facility with different refrigeration temperature zones. Refrigeration technology will be ammonia, Glycol or CO_2-based.
- Supporting facilities including plant room, chiller area, power system (roof-top solar), office space, guardhouses, and pallet repair areas.
- 10 docking bays for loading and un-loading of goods.
- Small WWTP to treat cooling water effluent to national discharge standards and recycle 60% back into the cooling system.
- An integrated power system comprising roof-top solar PV system and a backup diesel-powered generator in case of grid outages (to service 2-3 MW power demand).
- End-to-end customer logistics serviced by 12 refrigerated vehicles.

A detailed description of the Project components is presented in *Chapter 4* of this report.

This ESIA Report has been compiled as part of the requirement of the Ministerial order no.001/2019, which establishes the list of projects that must undergo EIA, instructions, requirements, and procedures to conduct EIA. The ESIA has also been undertaken in line with the requirements of the IFC Performance Standards (PS) on E&S Sustainability (2012) and the Integrated Safeguard System of the AfDB.

Table 1-1 Coordinates of the Project Site

Plot Number	ID	Coordinates (Reference System: UTM 36M wgs84)	
		Easting	Northing
1/02/11/04/2099	1	184193.20	9784297.60
	2	184234.88	9784206.26
	3	184337.47	9784254.35
	4	184365.76	9784378.13

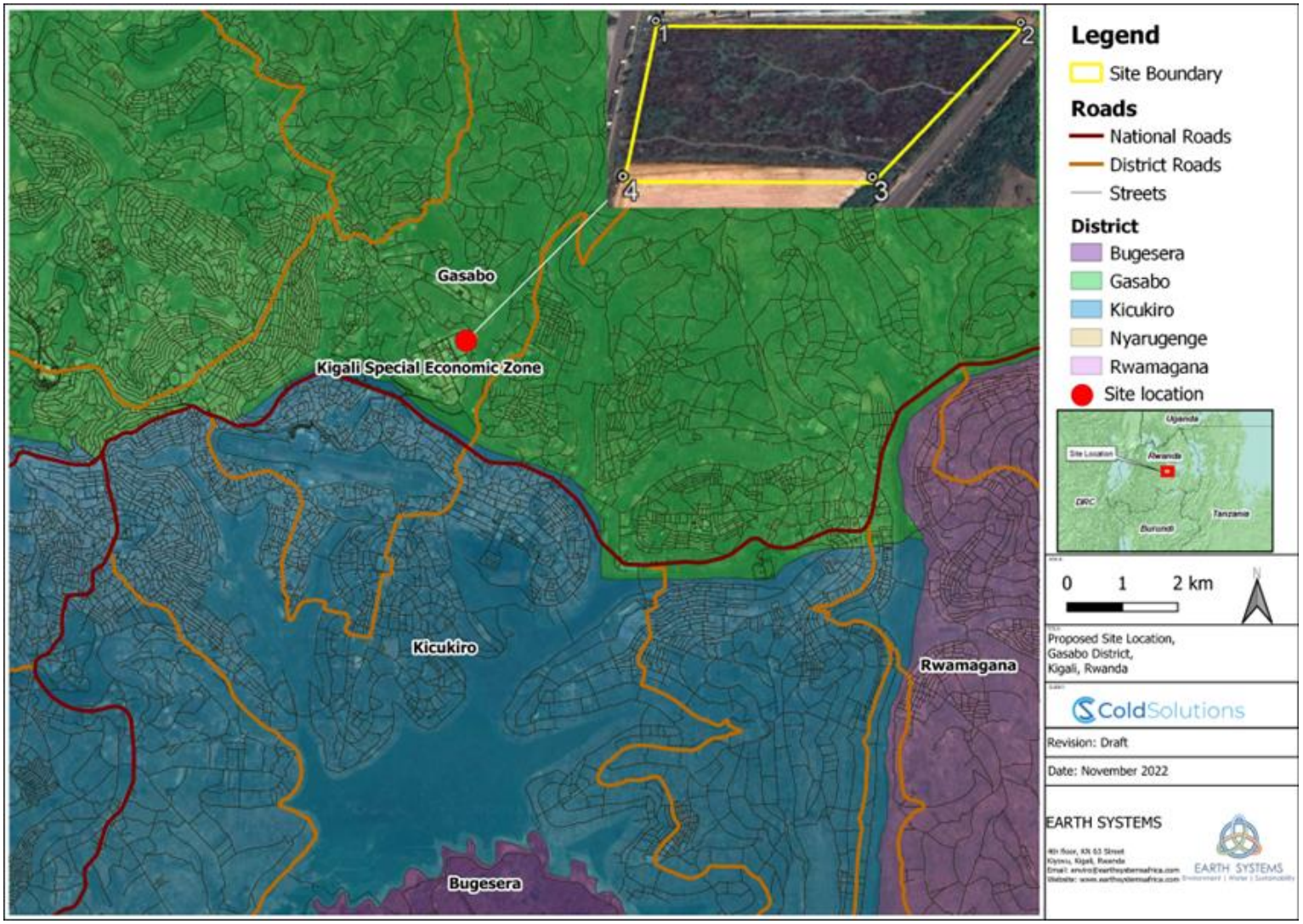


Figure 1-1 Project Locality Map

1.2 Purpose of the Report

The information contained in this ESIA report, along with comments and inputs received from stakeholders and commenting authorities, will assist the competent authority, the RDB, in deciding whether to grant environmental authorisation for the proposed Project, and to inform the conditions associated with such authorisation.

The ESIA process involves the identification, prediction and evaluation of actual and potential E&S impacts of the Project and outlines the proposed mitigation measures for negative impacts and enhancement measures for positive impacts which the Project Proponent will implement.

The objectives of this document are to:

- Communicate the results of the ESIA process for the proposed Project and alternatives considered;
- Ensure that the impacts identified during the ESIA process are assessed;
- Present the mitigation and enhancement measures which will be implemented by the Project Proponent to manage the impacts identified;
- Provide a record of comments and responses received from Stakeholders during the ESIA process; and
- Facilitate an informed decision-making process by the relevant authorities.

1.3 Project Justification

There is a severe shortage of cold chain solutions across East Africa resulting in large post-harvest food losses and seasonally affected supply chains causing volatility in market pricing. The cold storage facilities and logistics operations developed by CSRL will result in positive development outcomes both directly, by reducing food losses and flattening market pricing, and also indirectly, through businesses that will develop within the value chain. The project is also expected to support the UN Sustainable Development Goals (SDGs). The table below summarises the main SDGs applicable:

Table 1-2 Project's Contributions to SDGs

SDG	Applicability
SDG 1 and SDG 2: No poverty and zero hunger	The project is expected to contribute to food security through the installation of an efficient food storage and cold chain infrastructure facility with the ability to hold food reserves and to move products without disruptions. Resulting in fewer price fluctuations and enhanced food availability.
SDG 3: Good health & well-being	Improvement of vaccine efficacy in the region through reliable cold storage facilities at a commercial scale
SDG 5: Gender equality	The project proponent aims to focus on enhancing the prosperity of female employees and benefit all the East African employees through various training and sustainability programmes
SDG 8: Decent work and economic growth	The creation of third-party TCSF and logistics will enable businesses to operate efficiently under harvest season fluctuations and market variations and boost production capacities, margins, and cash flows.
SDG 9: Industry innovation and infrastructure	The project will also be contributing to the overall infrastructure development in East Africa. The region countries have no or few third-party providers of TCSFs. Additionally, the facilities will achieve a green building certification (Leadership in

	Energy and Environmental Design (LEED), IFC Edge, Energy Star) to demonstrate that energy efficiency measures have been carried out as far as technically feasible.

Food loss is a significant contributor not only to food insecurity but also to Greenhouse Gas (GHG) emissions, specifically methane, in Africa, therefore a reduction in food losses will also contribute to a related reduction in GHG emissions. As such, from the offset, CSRL activities are geared towards achieving positive E&S impacts.

A similar facility which is currently being developed by the ARCH[1] subsidiary, Cold Solutions Kiambu SEZ Limited, in Tatu City Special Economic Zone, Kiambu County, is the company's flagship facility and an additional facility in Colfax Industrial Park, Kwale County, Kenya. The facilities provide the blueprint for development, construction, and operations of other such facilities, in other targeted areas, including this proposed Project, located in the CoK, Rwanda.

1.4 Project Proponent

The Project Proponent, CSRL, is a corporate entity incorporated in Rwanda with the objective of developing a portfolio of cold storage warehouses and end-to-end logistics to help close the current gap of a severe shortage of cold chain solutions in Rwanda.

CSRL is a portfolio company of ARCH Cold Chains Solutions East Africa Fund LP (CCSEAF), set up to construct, develop, and operate the projects in the East African Region. CCSEAF is developing a cold chains solutions network across East Africa including Rwanda, Uganda, Kenya, Ethiopia, and Tanzania. The 'Tatu Project' in Kenya is the first facility being rolled out by CCSEAF, with the second and third ones in Mombasa (Kenya) and Kigali (Rwanda). Development of more similar facilities in the region is foreseen in the short to medium term. The proposed Project in the KSEZ will be the company's first Project in Rwanda.

CCSEAF is funded by Development Finance Institutions (DFIs) and other institutional investors such as the European Investment Bank (EIB), AfDB, Emerging Market Climate Action Fund (EMCAF). As such, all projects are developed in accordance with the standards of these institutions – detailed further in Chapter 2

1.5 Environmental and Social Impact Assessment Consultant

1.5.0 Environmental Resources Management Consulting East Africa Limited (ERM)

ERM was appointed by the Project Proponent to undertake the ESIA for the proposed Project. ERM has no financial ties to, nor is it a subsidiary, legally or financially, of the Project Proponent.

ERM is a leading global provider of integrated environmental, health, safety, risk, social consulting and sustainability related services with over 160 offices in more than 40 countries and territories. ERM has operated throughout Africa for over thirty-five years and our Sub-Saharan Africa Business Division with over 200 employees is currently based in South Africa (Cape Town, Durban and Johannesburg), Mozambique (Maputo), Kenya (Nairobi) and Tanzania (Dar es Salaam).

The ERM team will coordinate the overall ESIA study to meet the requirements of international standards.

1.5.1 Earth Systems

ERM's subcontractor for this Project, Earth Systems is an international consulting firm that provides specialist E&S services to the infrastructure development sector, as well as other industries. Established in 1993, Earth Systems has successfully completed over 600 projects for a range of

[1] ARCH Emerging Markets Partners Limited ("ARCH") is a specialist emerging markets investment advisor with deep experience of emerging markets, private equity, asset management and legal and governance.

clients including private companies, governments, aid and development agencies and research organisations. Earth Systems has more than 15 years of experience in East and West Africa, conducting ESIAs and ESMMPs, E&S baseline surveys, Resettlement Action Plans (RAPs), and Livelihood Restoration Plans (LRPs). Earth Systems has an experienced team of social scientists and detailed experience in conducting socioeconomic baseline surveys, social / health impact assessments, resettlement action plans and livelihood restoration plans.

The ESIA team for this Project is presented in Table 1-3.

Table 1-3 ERM Project Team

Position	Name	Qualifications and Certifications
Partner in Charge	Nigel Seed	▪ BSc. Environmental Management
Project Manager and E&S Technical Lead	Wanjiku Githinji	▪ MSc in Environmental Assessment, Auditing and Management Systems ▪ BSc Environmental Studies
Environmental Lead	Alistair De Sousa	▪ Bachelor of Science in Environmental Science and Natural Resources Management. ▪ NEMA Kenya Associate EIA/Audit Expert (Reg. No 11749).
Social Consultant and Stakeholder Engagement Lead	Gideon Owaga	▪ Masters in Rural Sociology and Community Development. ▪ Bachelor of Arts in Sociology and Public Administration. ▪ NEMA Kenya Associate EIA/Audit Expert (Reg. No 10452).
E&S Analyst	Nahida Khamis	▪ BA Geography ▪ MSc Applied Environmental Economics
Rwanda In-country Lead Environmental Expert	Dr. Kevin Schiele	▪ Doctor of Philosophy (Earth Science, Climate & Environmental Change) ▪ Master of Science (Geoscience) Bachelor of Science (Geoscience) ▪ RAPEP Lead expert (Reg. No. RAPEP/EA/236)
Associate Environmental Expert	Magalie Ntahokaja	▪ Masters in Earth and Environmental Sciences Bachelor of Environmental Science. ▪ RAPEP Associate expert (Reg. No. RAPEP/EA/061)
Principal E&S Scientist, Project Director, ESIA Expert	Nigel Murphy	▪ Master of Environmental Science. ▪ Bachelor of Science, Honours (Earth Sciences).

1.6 Report Structure

The structure of this ESIA Project Report is outlined in Table 1-4.

Table 1-4 Report Structure

Section	Contents
1: Introduction	Contains an overview of the Project, Project justification, Project Proponent, ESIA Consultant and an outline of the report structure.
2: Legal and Institutional Framework	Outlines the legislative, policy and administrative requirements applicable to the proposed Project.
3: Approach and Methodology	Outlines the approach to the ESIA and summarises the process undertaken by the Project to date.
4: Project Description	Includes a detailed description of the proposed Project activities.
5: Consideration of Alternatives	Describes the alternatives that have been considered and the reasons for the selection of the preferred alternative.
6: Biophysical Baseline	Describes the receiving biophysical baseline environment.
7: Socio-economic Baseline	Describes the receiving socio-economic baseline environment.

Section	Contents
8: Stakeholder Engagement	Describes the approach to and outcomes of the stakeholder engagement and public participation process.
9: Impacts Assessment and Mitigation Measures	Describes and assesses the potential E&S impacts of the proposed Project. Mitigation measures are also presented.
10: ESMMP	Specifies the mitigation and management measures to be undertaken and showshow the Project will mobilise organisational capacity and resources to implement these measures.
11: Conclusions and Recommendations	Summarises the key findings of the ESIA process and provides recommendations for the mitigation of potential impacts and the management of the proposed Project.
References	Contains a list of references used in compiling the report.

In addition, the Report includes the following Appendices:

Appendix A: ERM and Earth Systems Registration and Practicing Licences
Appendix B: Land Title Deeds of the Project Site
Appendix C: Stakeholder Engagement Plan (SEP)
Appendix D: Background Information Document (BID) used during the Stakeholder engagement exercise
Appendix E: Detailed minutes of stakeholder engagement meetings conducted during the ESIA process , including attendance registers/ stakeholders' comments

2. NATIONAL LEGISLATION AND INTERNATIONAL GOOD PRACTICE REQUIREMENTS

2.0 General Overview

This *Chapter* outlines the existing national and international E&S legislation, policies and institutions applicable to the Proposed Project that will guide the development of the Project, which is subject to this ESIA Project Report. This includes a summary of the IFC PS on E&S Sustainability and the Integrated Safeguard System of the AfDB. As Rwanda is a signatory to various international conventions and laws, relevant international conventions are also presented.

2.1 Rwanda Policy Provisions

2.1.0 National Environment and Climate Change Policy (2019)

The policy builds on the successes of the previous 2003 environmental policy and expands its coverage to include climate change. Today, for Rwanda, 'green' and 'growth' are not separable. In maintaining the desired rapid economic growth, the policy identifies clear actions to cope with the increasing threats of climate change.

The main goal of the policy is to support Rwanda become a nation with a clean and healthy environment, resilient to climate variability and change that supports a high quality of life for its society.

Policy Objectives include; 1) Greening economic transformation, 2) Enhancing functional natural ecosystems and managing biosafety, 3) Strengthening meteorological and early warning services, 4) Promoting climate change adaptation, mitigation and response, 5) Improving environmental well-being for Rwandans, 6) Strengthening environment and climate change governance and 7) Promoting green foreign and domestic direct investment and other capital inflows. Most relevant to this project is policy objective1.

Under Policy objective 1 "Greening economic transformation", policy statements 1, 3, and 4 have been set up with actions to be implemented in order to achieve this objective 1.

Policy statement 1 emphasises promotion of a green economy that is resource efficient, low carbon and climate resilient. The policy sets out actions to achieve this statement as; creating favourable conditions to attract investments in green job creation through the management of the environment and climate mitigation actions, strengthening the use of tools of EIA, Strategic Environmental Assessment, periodic Environmental Assessments and enforcement of Environmental Management Plans.

Policy statement 3 of the policy objective 1, there is priority to promote green technologies and procurement. Where green procurement gives higher priority to materials with lower environmental impacts in order to expand market of green products. Policy action to achieve this policy relevant to the CSRL project is to put in place mechanisms to develop and promote green technologies in all sectors of economic development and facilitate appropriate climate change mitigation and adaptation technological development, including strategies to increase human capacity, especially amongst the youth and women.

Under policy statement 4, actions proposed comprise; promotion and incentivising the use of low-carbon materials for construction, promoting waste management system to reduce GHG emissions and promoting technologies for efficient and safe water use and recycling.

Priorities and actions promoted under these three policy statements of the policy objective 1, may serve as guidance of items to prioritise in the project designs, construction and operation.

Relevance to this Project

In line with the above policy statements, this ESIA has been conducted for the proposed CSRL TCSF in Kigali to ensure that the project is implemented in an E&S sustainable manner.

2.1.1 National Strategy for Transformation (NST) 1[1] and Vision 2050

Rwanda has embarked on Vision 2050 with five broad priorities. Most relevant to the CSRL TCSF project in Kigali is the Priority 3 "Transformation to prosperity". Priority 3 sets out to achieve increased productivity and competitiveness while providing job opportunities for Rwandans. One of the initiatives proposed to achieve Priority 3 is through agro-processing by advanced food industry, technology intensive agriculture with a commercial focus.

The CSRL project contribution to priority 3 of Vision 2050, is that it presents opportunities of TCSF to food produced, hence increasing the shelf life of food produced, reduces post-harvest losses resulting from rotting and spoils and contributes to sorting and packaging of food for export and local consumption. Furthermore, the CSRL project will provide job opportunities for Rwandans.

The NST1 2017-2024, is the implementation instrument for the remainder of the country's Vision 2020 and the first four years of Vision 2050 (i.e. 2020-2024). As part of the NST1 pillars, the most relevant to this project is Pillar 1 "Economic Transformation".

Under Pillar 1 is Priority area 4 "Promote industrialisation and attain a structural shift in the export base to High-value goods and services with the aim of growing exports by 17% annually". Under priority area 4, the NST1, highlights initiatives of priority to Rwanda that include; identification and attraction of pro-active investors with priority of those in the business of value chains of focus including agro-processing. Agro-processing industries will be facilitated to access raw materials working with farmers and the private sector through improving the framework of contract farming and setting up of industrial blocs among others.

Relevance to this Project

The aspects of promoting industrialisation and attaining a structural shift in the export base to High-value goods and services with the aim of growing exports discussed in the Vision 2050 and NST1 above show relevance and contributions of the CSRL TCSF project in Kigali project towards achieving priorities and goals set by these policies for the time horizons of 2024 and 2050.

2.1.2 National Land Policy (2019)[2]

This revised land policy builds on the achievements of the 2004 land policy and ensures continuity of the unfinished agenda in different land thematic areas such as land use planning, land use management and land administration.

The overall objective of the national land policy is to strengthen land administration and management to ensure optimal allocation and use of land.

The policy is structured under three pillars of land management; Pillar 1 - land use planning, surveying and mapping, Pillar 2 - land use management and Pillar 3 - land administration.

Under Pillar 1, the policy orientation on development and implementation of land use plans, states the government shall carry out regular quality assurance of resettlement plans before expropriation and enforce their effective implementation.

Most relevant to the CSRL TCSF project in Kigali is pillar 3, which provides policy orientation on how to improve the current land administration system in Rwanda in terms of (i) land registration, (ii) administration of land lease fees and real property taxes, (iii) management of land related disputes and iv) coordination of the land sub-sector.

[1] National Strategy for Transformation (NST 1) 2017-2024

[2] National Land Policy, June 2019.

Actions proposed to improve land registration entail; (i) to update and harmonise land use information gathered during previous land registration with respect to various land use categories, (ii) to simplify land registration processes and facilitate easy access to land documents by the right owners using IT-based solutions, (iii) to reduce land transaction costs related to transfer of ownership and rights in order to avoid informal transactions, (iv) to promote maximisation of expected benefits from land tenure regularisation.

In respect to land lease fees and real property taxes, the policy set actions to; (i) review land-related taxes based on actual value of land on the market, update the land registry on regular basis to inform the tax collection process and in case of land use change, adjust land taxes based on effective phases of the implementation of land use plans, (ii) ensure up-to-date property databases are available for each district and accessible by respective district officials with the aim to capture the needed information for establishing reliable tax bases and update real property taxes in consultation with citizens.

Regarding land rights and land disputes, the Government of Rwanda (GoR) has made commendable progress in securing land rights, equity in land distribution, land-related legal reforms, and promotion of women's land rights. This policy proposes to address the remaining gaps by taking actions such as; ensuring that land transfer services are supported with sufficient evidence to avoid any resulting disputes, build capacity of local entities, mediators and the judiciary in the management of land disputes/conflicts.

Relevance to this Project

Pillars and actions proposed by this policy have a direct implication on the Project; during land acquisition for the project and payment of property taxes at land acquisition and during project implementation.

2.1.3 Water Resources Management Policy (2011)

The overall goal pursued in this policy is to manage and develop the water resources of Rwanda in an integrated and sustainable manner, so as to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of all stakeholders in decisions affecting water resources management.

Under this policy, water allocation will be allocated on the basis of comprehensive and integrated plans and optimum allocation principles that incorporate efficiency of use, equity of access and sustainability of the resource. Guidelines will be developed and implemented for the issuance of permits for wastewater discharges, compliance monitoring and penalties.

Relevance to this project

With the CSRL project in the KSEZ, it would be of importance to understand guidelines and comply with wastewater discharge permits during the design and operation of wastewater treatment system of the project, wherever they exist.

2.1.4 National Sanitation Policy (2016)[1]

Sanitation under this policy is understood as the collection, transport, treatment and disposal or reuse of human excreta and domestic and industrial waste (liquid, solid and gaseous) as well urban storm water management. It also includes the management of electrical and electronic waste (e-waste), hazardous waste, health-care waste, and radioactive and other dangerous substances.

Concepts of significant importance to the policy and relevant to the project are; urban stormwater management and faecal sludge management.

Specific policy objectives on:

[1] National sanitation policy, 2016.

- Off-site collective sanitation - require development of safe, well-regulated and affordable off-site sanitation services (such as; sewerage and sludge collection, treatment and reuse/disposal) for densely populated areas;
- Storm water management - require enhancement of storm water management in urban areas to mitigate impacts on properties, infrastructure, human health and the environment; and
- Solid waste management - require implementation of integrated solid waste management in ways that are protective to human health and the environment.

Policy directions towards achieving these objectives above were established that contain:

- Prioritising off-site collection of grey water (through sewerage) and on-site collection and treatment of excreta where existing toilets or waterless latrines are already providing a safe level of service;
- Conventional sewerage with separate collection of domestic wastewater (separate from rainwater drainage);
- Innovative management models shall be encouraged, such as community or privately operated decentralised sewerage systems, Innovative technologies and approaches for the reuse and recycling of side products (such as sludge in agriculture, treated wastewater for irrigation and watering);
- Regarding stormwater management, the key issue is the integration of preventive measures in storm water management in urban areas and land use planning. Damages and expensive constructions (e.g., large drainage systems) and remedial measures shall be minimised by preventive soft concepts, such as the Low Impact Development approach, which aims to manage storm water close to its source and treat it as a resource rather than a waste product. As enforcement, some measures shall be taken for the storm water and rainwater management by incorporating this component in the construction permit requirements, especially in the CoK and other secondary cities, for special cases of public buildings and larger private buildings. For that, the Rwanda Housing Authority shall be involved by elaborating directives and guidelines related to storm water and rainwater management at the compound level. Additionally, rainwater collection at the building level shall continue to be promoted as another means to decrease the risks of runoff impacts and to increase water availability for hygienic purposes; and
- As for solid waste management, the policy promotes “waste management hierarchy” for households and business solid and liquid waste management. This hierarchy from most preferred to least preferred involves; source reduction and reuse, recycling/ composting, energy recovery, treatment and disposal. The policy also encourages sorting of solid waste at the source, before its collected and transported for disposal. On-site and off-site transportation of waste should be conducted so as to prevent and minimize spills, releases and exposures to the public.

Relevance to this project

Though proposed for the project to be located in the KSEZ, with infrastructure already in place to handle sanitation, this policy direction on off-site collective sanitation, storm water management and solid waste management shall need to be considered in preparation of the project designs and implementation.

2.1.5 Energy Policy (2015)

The energy sector in Rwanda consists of four components: electricity, biomass, gas and petroleum, with each playing a key role in Rwanda’s transition to a middle-income country by the end of the decade.

The overall goal of the policy is to ensure that all industries can access energy products and services that are sufficient, reliable, affordable, and sustainable.

One of the specific core global objectives of the energy policy includes encouraging and incentivizing more rational, efficient use of energy in public institutions, and amongst industrial and household end-users. For this reason, the policy aims to create a sound enabling environment for;

- off-grid energy service provision including the development of distributed, small-scale renewable energy solutions and business models; and
- lean fuels energy service provision, including the development of infrastructure and distribution for LPG and biogas.

Relevance to this project

The CSRL TCSF project in Kigali project have looked into benefits and incentives arising from introduction of off-grid renewable energy solutions (Such as solar power for heating and lighting) and cleaner cooking fuels (such as Liquified Petroleum Gas (LPG) for cooking) in the design and implementation of the project, as a means of achieving sustainable, affordable, reliable energy for project activities.

2.1.6 Green Growth and Climate Resilience (2011)

Rwanda published a Green Growth and Climate Resilience Strategy in 2011 (GGCRS) (2011) that set out a vision for low carbon growth and adaptation to climate change. It provides the country's roadmap for becoming a climate resilient, low carbon economy by 2050.

As one of its strategic objectives is to achieve energy security and a low carbon energy supply that supports the development of green industry and services. To implement this objective, steps have been presented under programme 7 of this strategy "Green Industry and Private Sector Development", which comprise:

- Scaling up resource efficiency to reduce energy and water demand, thus reducing emissions and promoting resilience; and
- Employing efficient and zero waste technologies, practices and design in Special Economic Zones and provincial industrial parks.

Relevance to this project

As proposed in this policy, CSRL shall consider integrating resource efficiency and waste reduction in designing and implementation of this project.

2.1.7 National E-Waste Management Policy for Rwanda

The E-waste policy was developed to provide comprehensive guidance for the efficient and effective management of discarded electrical and electronic equipment (EEE) through appropriate legal and regulatory instruments, which promote green development and ensure a sustainable economic growth for the country.

Therefore, the National E-waste Management Policy for Rwanda will control the end-of-life of EEE, resulting in the protection of human health, the conservation of the environment, the development of a business niche in the E-waste management and recycling industry, and creation of employment for Rwandans.

Relevance to this Project

Electrical and electronic equipment will be used within the Project, with E-waste expected to be generated in offices and cold storage equipment / facilities associated with the Project.

2.2 National Legal Framework

2.2.0 Administrative Framework

The main administrative structures involved in the implementation of the environmental management and construction process are described in the following sections.

2.2.0.0 Ministry of Environment (MoE)

MoE is the Government's arm responsible for establishing norms and practices for rational exploitation and efficient land management, environment protection, water Resources and evaluating their implementation. This implies that it prepares polices related to environmental conservation and protection. It also shall oversee all aspects regarding environmental monitoring and appropriate natural resources exploited through programme activities. To implement the obligations of environmental protection, management and monitoring, MoE has delegated this task to REMA.

CSRL is expected to comply with environment conservation and protection policies and laws relevant to the project activities.

2.2.0.1 Rwanda Environment Management Authority (REMA)

REMA, is the authorised Government institution to determine modalities of protection, conservation and promotion of the environment in Rwanda. REMA shall periodically monitor the project activities to ensure proposed E&S safeguard mitigation measures in the ESIA are implemented and that it has no adverse impacts on the environment.

2.2.0.2 Rwanda Development Board (RDB)

Though REMA is the authorised Government institution to determine modalities of protection, conservation and promotion of the environment in Rwanda, it has since 2009 delegated responsibility for the review of EIA reports to the RDB. In regard to this study, RDB shall authorise the project to proceed by issuing an EIA certificate and will also periodically monitor the project activities to ensure mitigation measures are implemented and that the Project has no adverse impacts on the environment.

2.2.0.3 Rwanda Standards Board (RSB)

RSB is a public institution established by government to undertake all activities pertaining to the development of standards, conformity assessment and metrology services in the country.

The CSRL project is expected to comply to national standards set by RSB and international standards where national standards do not exist for items such as; effluent wastewater discharged, noise levels, dust and air pollution levels, construction material.

2.2.0.4 City of Kigali (CoK) One Stop Centre (OSC)

All project designs,. i.e. architectural, structural, MEP designs, topographic survey reports, geotechnical study reports, shall be submitted by CSRL to the OSC of the CoK for review and approval in order to acquire a construction permit before commencement of any form of construction on site. Once construction is completed, CSRL shall once again apply for an occupational permit from OSC of the CoK before operation can commence.

2.3 Relevance to this Project

The above established institutions are relevant to the Project to ensure appropriate and compliant management of both E&S issues associated with the Project. In particular, the Project Proponent must obtain the EIA Certificate of approval prior to the commencement of the construction activities,

confirming that adequate mitigation measures have been proposed and will be implemented during the Project lifecycle to reduce any identified E&S impacts to acceptable levels.

2.4 Relevant Statures

2.4.0 The Constitution of the Republic of Rwanda, 25th December 2015

It should be noted at the outset that, all laws and regulations in Rwanda must be aligned with principles in the Constitution. The Rwandan Constitution was approved in a national referendum and adopted in Parliament on 25th December 2015.

According to the Constitution of the Republic of Rwanda, Article 3 states that the Constitution is the supreme law of the country. Any law, decision or act contrary to this Constitution is without effect.

Article 21 of the Constitution states that all Rwandans have the right to good health, while article 22 emphasises that everyone has the right to live in a clean and healthy environment.

Article 34 stipulates that everyone has the right to private property, whether individually or collectively owned. Private property, whether owned individually or collectively, is inviolable. The right to property shall not be encroached upon except in public interest and in accordance with the provisions of the law. Article 35 goes on to inform that Private ownership of land and other rights related to land are granted by the State. A law determines modalities of concession, transfer and use of land.

Regarding protection of the environment, Article 53 of the Constitution, everyone has the duty to protect, safeguard and promote the environment. It goes on to say that the State ensures the protection of environment and a law must be in place that determines the modalities for protecting, conserving and promoting the environment.

Relevance to this Project

The implication of the Constitution towards is that the project shall be implemented in a clean and healthy environment, with a duty to protect and conserve the environment.

2.4.1 Environment Organic Law No. 48/2018

The purpose of the Law No.48/2018 on environment is to determine modalities for protecting, conserving and promoting the environment.

Based on article 30 of this law, a list of projects that must undergo an EIA before authorisation for their implementation is established by an order of the minister.

Article 32 of the law further states that every project that may have significant impact on the environment must undergo an environmental audit during and after its implementation. It goes on inform that an Order of the Minister also issues instructions and procedures for conducting environmental audit.

Article 33 states that the EIA and Audit must be approved by the Authority in charge of conservation and environment (in this case, REMA) or another state organ authorised in writing to do so by the Authority and as stated in article 34 the consultancy cost for environmental audit and EIA are borne by the project initiator.

Article 46 of the law informs that any person who does not carry out EIA before launching any project that may have harmful effects on the environment while it is required, is punished by suspension of his/her activities or closure of his/her association and ordered to rehabilitate the damage to environment, persons and property. He/she also pays an administrative fine of two percent (2%) of the total cost of the project.

As stated in the law mentioned above, the Ministerial order No.001/2019 establishes the list of projects that must undergo EIA, instructions, requirements and procedures to conduct EIA. Annex 1 of the Ministerial order contains the list of projects that must undergo a full EIA. Among the projects

eligible are; warehouses and storage facilities of perishable agricultural commodities occupying an area of a half a hectare (1/2 ha) and above, industries, warehouses for storage of hazardous items or perishables, warehouse with total floor area exceeding one thousand and five hundred square meters (1500 sqm) and plot size exceeding one thousand square meters (1000 sqm).

The CSRL project components meets at least one of these conditions and is therefore eligible to carrying out a full EIA.

As required by this Ministerial order, an expert from the published list of EIA practitioners has been recruited to conduct this study.

In regard to conservation and protection of built environment, Article 17 of the law instructs that collection, transport and disposal of wastewater are conducted in accordance with special regulations and guidelines issued by the competent authority (currently, the Rwanda Utilities Regulatory Authority (RURA)). Liquid waste must be collected in treatment factories for purification and serve thereafter to perform hygiene, sanitation and developmental activities. Water efficiently purified to standards may be poured into streams or lakes.

Regarding solid waste management, Article 18 informs that no person is authorised to discard solid waste in an inappropriate place. Solid waste must be sorted, collected and transported to appropriate destination in accordance with relevant laws. Solid waste must be disposed of in appropriate landfill or in a waste processing factory for production purposes.

As part of the obligations of the State, decentralised entities and local communities with regard to the protection, conservation and promotion of environment, the Law obliges the state to protect and conserve soil, biodiversity, energy use. Furthermore, Article 23 requires public organisations in charge of housing and infrastructure to ensure the integration of green spaces in the masterplan as well as in individual construction plans.

In regard to noise pollution, Article 53 of the law stipulates that any person who causes noise pollution is liable to an administrative fine of RWF 500,000.

Ambient Noise Pollution Standards

The Rwanda standard RS 236:2014 provides ambient air quality standards in respect of noise for daytime and night-time for industrial area, commercial area, residential area and silence zone. Silence zones are defined as up to 100 m around such premises as hospitals, educational institutions, libraries and courts. Ambient air quality standards with respect to noise are provided in Table 2-1

Table 2-1 Ambient standards in respect to noise

	Category of area	Limit in dB, Max	
		Daytime	Night-time
1	Industrial area	75	70
2	Commercial area	65	55
3	Residential area	55	45
4	Silence zone	50	40

Ground Vibration Standards

The standard RS 237:2014 provides maximum acceptable limit for ground vibration in order to ensure safety of infrastructure at sensitive sites. Sensitive sites in respect to ground vibration are defined as “Any land within 10 m of a residence, hospital, school, or other premises in which people could reasonably expect to be free from undue annoyance and nuisance caused by vibration. The 10 m will be measured from the boundaries of the property”.

The standard is expressed in terms of peak particle velocity (PPV) which is the maximum instantaneous sum of the velocity vectors of the ground movement measured in three orthogonal directions (expressed in millimetres per second). PPV is the maximum of instantaneous velocities V calculated following the equation (1):

$$V = \sqrt{v_v^2 + v_l^2 + v_t^2} \quad (1)$$

A maximum PPV of 5 mm/s is set for ground vibration at sensitive sites, defined above.

This Environmental law is therefore the guiding blueprint of instruction to implementation of an environmentally sustainable project with regard to obligations of; performing an EIA, conserving and protecting the environment through soil protection and conservation, biodiversity protection, liquid and solid waste management, provision of green space in project design and mitigation of other possible adverse impacts to the environment.

Relevance to this Project

The proposed Project falls within the category of projects for which a full EIA Project Report is required. More specifically:

- warehouses and storage facilities of perishable agricultural commodities occupying an area of a half a hectare (1/2 ha) and above,
- industries,
    - warehouses for storage of hazardous items or perishables, warehouse with total floor area exceeding 1500 sqm and plot size exceeding 1000 sqm.

This EIA has therefore been carried out in line with the requirements of this law, and the Project Proponent is required to commit to implementing the ESMMP laid out in this Project Report, as well as any other conditions as stipulated by REMA, prior to being issued an EIA licence.

2.4.2 Ministerial order no.001/2019 establishing the list of projects that must undergo EIA, instructions, requirements and procedures to conduct EIA

The order establishes the list of projects that must undergo an EIS before they obtain authorisation for their implementation and instructions, requirements and procedures for conducting EIA.

Article 3 of the order states that no public institution is authorised to take a decision, to warrant a certificate, approve or authorise the commencement of a project mentioned in the annexes of this Order without prior EIA. The list of works, activities and projects that must undergo a full EIA before being granted authorisation for their implementation is in Annex I of this Order.

Article 4 further indicates that the list of works, activities and projects that must undergo a partial EIA before being granted authorisation for their implementation is in Annex II of this Order. The works, activities and projects referred to in Paragraph One of this Article are subject to assessment for environmental clearance certificate.

Projects, works and activities which are not listed on the Annex I and II to this Order are not subject to the EIA. However, when it is evident that work, activity or project not listed on the Annex I and II to this Order has a negative and irreversible impact on the environment and is similar in nature to the work, activity or project listed in Annex I and II of this Order, the Authority or authorised organ may request the developer to conduct an EIA.

Concerning procedures to conduct EIA, Articles 6, 7, 8 and 9 of this Order instruct that the developer whose project is eligible for EIA, selects an expert from the list of EIA practitioners published in accordance with relevant laws to conduct the study. The selected expert must not have any direct or indirect interests in that project.

The selected EIA expert, on behalf of developer, submits an official application for EIA of a proposed project to the authorised organ in form of a project brief together with proposed terms of reference for review and approval. The details of the required information are found in the EIA guidelines provided by the Authority.

After reception and analysis of the project brief and proposed terms of reference, within fourteen (14) days, the authorised organ approves or request for upgrade of terms of reference for conducting the EIA.

The EIA must be based on the terms of reference mentioned in Article 6 of this Order. Upon completion of the EIA, the expert submits it to authorised organ (in this case, the RDB). The authorised organ, within twenty (20) working days, after reception of the EIA report, accepts by issuing an EIA certificate or requests for additional information from selected EIA expert. If it is necessary to hold public hearing, the authorised organ requires an additional period of fifteen (15) working days from the date of public hearing notification.

Relevance to this Project

This ESIA Report has been undertaken to comply with the requirements of these Regulations.

2.4.3 Law n°62/2008 of 10/09/2008 putting in place the use, conservation, protection and management of water resources regulations

This law defines applicable rules to the use, conservation, protection and management of water resources. The Law, in Article 5, provides for the application and management of water resources in accordance with some of the following principles; the principle of prevention of the pollution with priority to the source, the principle “user-payer and polluter-payer” according to which the user of water and the polluter support a significant part of expenses resulting from measures of prevention, of pollution reduction and restoration of the resource in quality and in quantity, the principle that users of the public distribution services of drinking water and sanitation should play a major role in these services provided to them, according to the contributory capacity of users.

Article 7 of the law emphasises that the supply of water to the populations shall be the priority in the distribution of water resources.

Public water domain of the State is defined to consist of; natural and artificial public water domain, where the natural water domain comprises of; permanent streams, rivers, navigable or not, floatable or not, banks of lakes and ponds, swamps and humid zones, aquifers, as indicated in Articles 8 and 9 of the Law.

In regard to conservation of the natural public water domains, Article 14 emphasises precaution that no installation, no work of hold or dismissal of water, no work or activity can be done or experienced without declaration, prior authorization or concession, in conditions fixed by this law and without the perception of a royalty for the use of the public domain.

Articles 55 and 56 highlight measures to be taken in cases of an accident to a water resource, which involve immediate repair of the damage and the cost incurred for repairs incurred by one that caused the damage.

As for sanitation of water used for domestic purposes, Articles 58 and 59 require domestic, animal and industrial waste waters to be routed toward an individual treatment device before their rejection in the nature or being reused. This act is carried out in accordance with legal provisions relating to hygiene and sanitation. Sanitation facilities of domestic, animal or industrial waste waters must be constantly preserved and meet requirements set by the Minister after consultation with other institutions concerned.

According to Article 71 of the Law, public works meant to bring water to people including treatment, distribution be it for domestic or industrial use shall be done in accordance with the law and the same shall apply to rainwater. Such works shall be carried out by a national water and sanitation body or by other administrative institutions or by such administrative institutions when brought together for such a purpose. Such works may be supervised by the responsible authorities or may delegate supervision to private operators.

The Rwanda Standards RS 109: 2017 provide the requirements of discharged Industrial wastewater. The Project must abide by these standards (Table 2-2)

Table 2-2 RS 109: 2017: Requirements of discharged Industrial wastewater

Parameters	RS109: 2017 (Tolerance Limit of Industrial discharged wastewater)
pH	5.0 – 9.0
Electric Conductivity (S/m)	-
Total Dissolved Solids (mg/l)	< 2000
Dissolved Oxygen (mg/l)	-
Chemical Oxygen Demand (mg/l)	< 250
Biochemical Oxygen Demand (mg/l)	< 50
Total Suspended Solids (mg/l)	< 50
Ammonia Nitrogen (mg/l)	< 20
Orthophosphates (mg/l)	< 10
Total Nitrogen (mg/l)	-
Total Phosphorus (mg/l)	-
Oil & Grease (mg/l)	< 10
Fecal Coliforms (Cfu/100ml)	< 4 x 102
Heavy metals	
Lead (mg/l)	< 0.1
Cadmium (mg/l)	< 0.1
Chromium Hexavalent (mg/l)	< 0.05
Pesticides	Not detected
Colour	-
Sulphide (mg/l)	< 1.0

Source: (RS 109: 2017)

Relevance to this Project

The Project, in accordance with this Law, is required to abide to all relevant requirements towards conservation, protection and management of water resources, some already mentioned above comprising of; which body to go to for public water network, who pays for damages caused to a public water source and how to handle wastewater generated from the project before discharge to the environment.

2.4.4 Land Law N° 27/2021 OF 10/06/2021 governing land

Law n° 27/2021 of 10/06/2021 governing land serves the purpose to determine modalities of acquisition, registration, allocation, possession, transfer, management and use of land in Rwanda.

With reference to Article 5 of this Law on equal right to land, it is stated that any form of discrimination in relation to access to land and enjoyment of real rights to land is prohibited.

In regard to modalities of land tenure, Article 9 of the Law states that a person who acquired land through inheritance, succession, purchase, donation, exchange, land sharing or legal grant by competent authorities, owns it in accordance with one of the following tenure modalities: emphyteutic lease or freehold. Emphyteutic lease is that type of land ownership based on a long-term contract between the State and a person granting him or her rights on land, while freehold is a form of land tenure based on a contract between a person and the State, where it grants him or her full and indefinite rights over the land.

Without prejudice to provisions of Article 9 of this Law, lands are allocated by the State in form of emphyteutic lease and land concession. The emphyteutic lease and land concession period does not

exceed ninety-nine (99) years which may be renewed. When the emphyteutic lease period expires, the lease period for a Rwandan is renewed automatically.

Article 15 states that the certification of emphyteutic lease, freehold or land concession is a certificate of land registration delivered by the registrar of land titles.

With regard to foreigner's rights on land, Article 16 of the Law states that without prejudice to provisions of Articles 6, 10, 11 and 12 of this Law, a foreigner has rights to: an emphyteutic lease and a land concession. The rights referred to under Paragraph One of this Article are only allocated for investment. A Presidential Order may determine other modalities of land possession by a foreigner.

As per Article 17, a person has an obligation to register his or her land property. Article 18 further indicates that a certificate of land registration is an original copy of the land register bearing a signature of the registrar of the land titles. It may be issued in an electronic or print format. The certificate of land registration constitutes conclusive evidence of the land related rights whenever their acquisition is lawful.

According to Article 21, some of the ways transfer of land rights is carried out are; lease or sale. Article 23, stipulates that the contract of land rights transfer done in writing is signed by transferee and transferor of land rights, approved and witnessed by the signature of the notary competent in land matters or any other notary recognised by the chief registrar of land titles. This transfer contract may be done electronically through digital signature of both parties granted by the competent organ in accordance with relevant laws. Transfer of land rights is valid upon its registration in the land register as per Article 24.

Relevance to this Project

The land law will be the reference point for the process of project land acquisition by CSRL.

2.4.5 Law No.10/2012 governing urban planning and building in Rwanda

This Law governs the urban planning and building in Rwanda. Concerning master plans for land management and urban planning, Article 13 of the Law states that the CoK and Districts shall have master plans for land management and urban planning in conformity with the pattern of rational land use in Rwanda.

Zones envisaged by urban master plans, master plans at the decentralized entities level and by local and specific development plans shall be subject to the following planning operations; land subdivision, urban replotting, plot restructuring, building renewal and building refurbishment, as per Article 15.

Articles 19 and 20 require that plots for construction must be serviced with public or private roads that allow direct access and establishment of buildings in plots shall be done in a way that facilities access to services.

The Law also covers topics on; rules in building, real estate development regulations, liability of construction professionals, masterplan for land management and urban planning, local and specific land development plans

Article 46 stipulates that local and specific land development plans with all infrastructure projects aiming at the occupation of space shall be compatible with the indications of the master plan for land management and urban planning.

The Law also indicates documents for supervision of building operations comprising; supervision documents, lease contract as certificate for urban land occupation, building permit to commence construction, occupancy permit after building completion and prior to occupancy, demolition permit.

Relevance to this project

The Project is required to follow the process of acquiring the relevant permits mentioned above in compliance to provisions in this Law.

2.4.6 Law n° 064/2021 of 14/10/2021 Governing Biological diversity in Rwanda

This Law's main purpose is to conserve, manage, protect and promote biological diversity in Rwanda. Article 4 of this Law categorises wildlife species classified in the following three (3) categories: category I is composed of critically endangered species, found in Annex I of this Law; category II is composed of endangered species, found in Annex II; and category III is composed of vulnerable species, found in Annex III.

Article 32: Conservation of wildlife species and their habitats for the purpose of conservation of wildlife species and their habitats, the following acts are prohibited: 1) taking or destroying an egg or a nest of any wild animal; 2) capturing, stressing, or removing animal species from their habitat, harming them, transporting, hawking, utilizing, possessing, selling or purchasing them; 3) destroying, cutting, mutilating, collecting or removing any wild plant species, picking fruits, transporting, hawking, utilizing, possessing, selling and purchasing, or seedlings or of wild plant species; 4) destroying, altering or degrading natural habitats of wild animal and plant species; 5) erecting infrastructure in protected areas. The Article further states that the acts cited in items 2, 3, 4 and 5 may be carried out upon a permit of the Authority. Quality Basic Education (QBE) project additional financing activities must be carried out in
accordance with this law.

Relevance to this project

In compliance with this Law, the Project shall consider the list of protected species during the preparation of the ESIA, during the construction and operation of the Project, as a measure to avoid negatively affecting protected species. The Project shall also avoid destruction of biodiversity through limiting vegetation clearance and prohibited practices such as waste dumping that may pollute the nearby water bodies or wetlands. The Project will also avoid the introduction of alien species to the site as instructed by this Law.

2.4.7 Air Quality Law No. 18/2016

Law No. 18/2016 governing the preservation of air quality and prevention of air pollution in Rwanda, requires the National Authority in charge of establishing quality standards (Rwanda Standards Board (RSB) in this case) to: prescribe criteria and procedure for measuring air quality and air pollutants; establish ambient air quality standards in order to curb the impact of air pollutants; establish occupational air quality standards for various sources of air pollution which can cause harm to public health; establish quality standards that regulate emissions of air pollutants from different sources contributing to air pollution; establish specific quality standards that regulate industrial activities with a view to avoid or minimise environmental pollution that may results from such industries; determine stack heights of chimneys for air emissions; prescribe any matter in relation with or affecting air emissions quality standards.

The Law also stipulates that any person whose activity is air polluting and does not comply with the air quality standards must apply for a permit issued by the national authority in charge of environmental protection (REMA in this case). An order of the Minister determines requirements and modalities for applying, granting and using the permit.

Enforcement of both laws described above required establishment of air quality specifications and emissions standards. Rwanda has adopted the following East African Standards that related to air quality:

- RS EAS 750 2010 - Emissions to the air by cement factories
- RS EAS 751 2010 - Air quality specification
- RS 752 2010 - Tolerance limits of emissions discharged to the air by factories.

It is against the background of this Law that air quality assessment could be done for gaseous and dust emissions should TCSF appear to pollute the atmosphere.

Relevance to this Project

The Project is located in an industrial zone where a number of light industrial developments are on-going. Dust creating activities during the construction phase will largely be associated with land clearing and earthworks. Air quality considerations during the operations phase will be associated with truck movements and the infrequent operation of a backup generator for power. Table 2-3 and Table 2-4 *presents the ambient air quality tolerance limits for industrial areas.*

Table 2-3 RS EAS 751:2010. Ambient air quality tolerance limits for dust

Pollutant	Time weighted average	Industrial area (µg/m^3)	Residential, Rural & Other area (µg/m^3)
Respirable particulate matter (PM_{10})	Annual average	70	50
	24 hours	150	100
$PM_{2.5}$	Annual average	35	
	24 hours	75	

Source: (RS EAS 751:2010)

Table 2-4 Emissions limits specified in EAS 752:2010.

Sulphur Dioxide (SOx) (Yearly average)	**Large Combustion Plants (LCP) using solid fuel**	
	50 to 100 MWth	850 mg/Nm^3
	> 100 MWth	200 mg/Nm^3
	LCP using liquid fuel	
	50 to 100 MWth	850 mg/Nm^3
	100 to 300 MWth	400 to 200 mg/Nm^3 (linear decrease)
	> 300 MWth	200 mg/Nm^3
	LCP using gaseous fuel	35 mg/Nm^3
	LCP using low calorific gases from gasification of refinery residues, coke oven gas, blast furnace gas	**800 mg/Nm^3**
Carbon monoxide (CO)	Liquid fuel combustion with heat output exceeding 5 MW	175 mg/Nm^3
	Solid fuel combustion with heat output of 50 MW and above	Not exceeding 250 mg/Nm^3
Dust	Inert dust, including cement	**250 mg/Nm^3 (24 hour mean)**
Nitrogen oxides (NOx) (yearly average)	**LCP using solid fuel**	
	50 to 500 MWth	600 mg/Nm^3
	> 500 MWth	500 mg/Nm^3
	LCP using liquid fuel	
	50 to 500 MWth	300 mg/Nm^3
	> 500 MWth	200 mg/Nm^3

Source: (EAS 752:2010)

2.4.8 The Labour law No. 66/2018

This Law applies to: employment relations based on an employment contract between an employee and an employer in the private sector; the public service, unless otherwise provided by the general statutes for public service; an apprentice; an intern; a self-employed person with regard to occupational health and safety; an informal sector employee with regard to: occupational health and safety; the right to form trade unions and employers' associations; the right to salary; the minimum wage in categories of occupations determined by an Order of the Minister in charge of labour; the

right to leave; social security; protection against workplace discrimination; protection from forced labour; prohibited forms of work for the child, pregnant or breastfeeding woman.

Relevance to this Project

The contractor and Project Proponent, being the primary employer, during the construction and operational phases of the Project, are bound by this law to abide to its stipulations on employee management and relations.

2.4.9 List of Environmental and Social Permits Required for the Project, as per the Requirements of Rwandan Law

Table 2-5 provides a summary of the E&S permits and licences required for the Project for both the construction and the operations phases.

Table 2-5 Relevant Environmental and Social Permits Required for the Project

Phase	Sector	Legislation	Authority	Permit/Licence	Comments
Construction Phase	Environment	Environmental law, 2018.	REMA	EIA Licence	The EIA licence will give the decision criteria for REMA and associated conditions of approval, which will need to be met. An annual audit report to REMA will be required to indicate conformance to these permit conditions are achieved.
		Regulation no. 007/R/SAN-EWS/RURA/2021 of 04/05/2021 governing solid waste collection and transportation services	RURA	Ensure that the contracted waste handlers (transport and disposal) are licensed by RURA	When disposing waste; it is important to note that RURA has licensed companies to collect and dispose of solid waste, as for liquid waste, the KSEZ ha sewer infrastructure in place to receive and treat discharged effluent.
	Land	Land Law N° 27/2021	Rwanda Land Management and Use Authority (RLMUA)	Title Deeds/ lease	Acquire a sales agreement from the management of PEZ and upon full payment of the land, an Emphyteutic lease land title from RLMUA
Operation Phase	Environment	Environmental law, 2018.	REMA	Self-Environmental Audit approval	An annual Environmental audit is required throughout the operations phase
		Law N° 13/2012 of 16/05/2012	REMA and National Industrial Research and Development Agency (NIRDA)	License/ Certification	The purpose of Major Hazard Installation (MHI) certification is to ensure the safe management of hazardous materials and substances at industrial facilities. The purpose of Major Hazard Installation (MHI) certification is to ensure the safe management of hazardous materials and substances at industrial facilities. There are no specific local regulations to guide MHI certification, as such it is important to liaise with REMA and NIRDA to understand which international standards have been adopted locally to guide this process.

2.5 Relevant Management Plans

2.5.0 PEZ construction permit checklist

The operation manual of PEZ in the KSEZ serves as a road map for prospective investors in the implementation of their projects as well as in their day-to-day operations. The manual states that after signing a contract with PEZ, the investor prepares designs for their project based on basic drawings provided by PEZ. After submission, the investor's project has to be examined and approved by the Special Economic Zone Authority of Rwanda (SEZAR) and given a construction permit.

A checklist to acquire a construction permit was presented by PEZ which comprises of the following items in the Table 2-6:

Table 2-6 PEZ construction permit checklist

Document	Attached	Not Applicable	Received (SEZAR only)*
Proof of payment of non-refundable application fee of Rwandan Francs (RWF) 60,000 (Account No 1000023414 of RDB in BNR)	☐	☐	☐
Proof of ownership	☐	☐	☐
Deed plan	☐	☐	☐
Conceptual artistic drawings of the site	☐	☐	☐
Topographical map of site	☐	☐	☐
Architectural layout drawings and details, including floor plan	☐	☐	☐
Water, plumbing, sanitation, and drainage drawings and details (including drainage plan for runoff from neighbouring plot)	☐	☐	☐
General arrangement of artificial ventilation (air conditioning / HVAC)	☐	☐	☐
Electrical, mechanical or fibre optic installation layout details	☐	☐	☐
Structural drawings, layout, and details, including bar bending schedule and structural calculations, showing loadings in structural calculation notes	☐	☐	☐
Bills of quantity	☐	☐	☐
Soil test results	☐	☐	☐
Environmental Impact Assessment Study	☐	☐	☐
Environmental management plan	☐	☐	☐
Fire safety plan and emergency exits	☐	☐	☐
Building elevation and setback	☐	☐	☐
Roof plan	☐	☐	☐
Fencing plan	☐	☐	☐
Projected level of utility usage (e.g., water, power, gas, wastewater, and telecommunications	☐	☐	☐
Utilities connections and outlet plans	☐	☐	☐
Exterior lighting plan	☐	☐	☐
Project implementation plan, with schedule, milestones, and deadlines	☐	☐	☐
Additional information	☐	☐	☐
All drawings and plans stamped and signed by the design consultancy firm.	☐	☐	☐
Details of special provisions for persons with disabilities?	☐	☐	☐

2.6 International Conventions, Protocols and Agreements

Rwanda is signatory to several international conventions and agreements relating to E&S matters (refer to Table 2-7). In certain cases, these have influenced the promulgation of domestic policy, guidelines, and regulations.

Although not all treaties/ conventions listed below have been enacted into domestic legislation; good practice would require that the ethos of each treaty be taken into consideration during the planning, construction, and operations phases of the Project.

Table 2-7 Summary of International Conventions

International Convention	Objective	Relevance to this Project
Montreal Protocol on substance that deplete the ozone layer, 1987 (and the Kigali Amendment of 15th October 2016)	Control of manufacture and use of ozone depleting substances.	Many refrigerants have both Global Warming Potential (GWP) and Ozone Depleting Potential (ODP). The selection of the refrigerants for the Project should avoid those phased out under this protocol as described in the analysis of alternatives in Chapter 5 of this report.
United Nations Convention on Biological Diversity (CBD)	The three goals of the CBD are to promote the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.	The habitats at the Project Site are highly modified which is attributed to previous land use (particularly farming) and the subsequent zoning of the Project Area as an industrial zone. However, landscape planning should consider the need to conserve biodiversity and prevent spread of invasive plant species.
United Nations Framework for Convention on Climate Change (UNFCCC)	Its main objective is to achieve the stabilisation of GHG concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with climate systems and within a specific timeframe which will allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.	The GHG emissions during the implementation of the Project should be controlled to avoid compromising the objective of this convention.
Bamako Convention, 1991	This convention focusses on the ban of the import of hazardous wastes into Africa and the control of transboundary movement and management within Africa.	Any Project associated hazardous wastes will need to be appropriately managed to avoid contravention of this convention. Moreover, Project procurement will need to screen all Project goods and products exported from the country. Appropriate and authorised destinations for the export of hazardous waste will need to be identified.
Basel Convention, 1989	Transboundary transportation and disposal of hazardous wastes. Its objective is to protect human health and the environment against the adverse effects of hazardous wastes.	Any Project waste will need to be correctly classified to identify what qualifies as hazardous waste according to this convention. Appropriate and authorised destinations for the export of hazardous waste will need to be identified.
Convention for the safeguarding of the	The objectives of this convention include to: safeguard the intangible cultural heritage; ensure respect for	As part of the social study associated with the ESIA, cultural and natural heritage (including intangible cultural heritage) have

International Convention	Objective	Relevance to this Project
intangible cultural heritage, 2003	the intangible cultural heritage of the communities, groups and individuals concerned and raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof.	been considered and appropriate measures for their management have been included in Section 9 of this ESIA Report.

2.7 International Good Practice and Lender Requirements

2.7.0 ARCH's Environmental and Social Framework

CCSEAF has developed an ESMS that will guide all investments into East Africa. CCSEAF is committed to developing and operating best-in-class cold storage and logistics operations in its target countries. The objective of CCSEAF's ESMS is to continually endeavour to enhance effective E&S management practices in all of her activities, products, and services with a special focus on the following considerations:

- Ensuring that applicable E&S requirements are met for all Investments;
- Integrating E&S risk assessments into investment due diligence processes;
- Ensuring appropriate consultation and transparency in project activities;
- Working together with the portfolio companies and business partners to put into practice applicable E&S requirements; and
- Actively seek investments with positive development benefits.

CCSEAF's ESMS includes the following policy statements:

2.7.0.0 CCSEAF E&S Compliance Framework

- Comply with or exceed all applicable legislation and regulations in the countries of investment;
- Apply the IFC PS (2012) and the WBG General Environment, Health and Safety (EHS) Guidelines (2007) to assess and manage E&S risks of investments – explained in Sections 2.7.1 and 2.7.2 respectively; and
- Apply the AfDB ISS (2013) – explained in Section 2.7.3.

2.7.0.1 Environmental and Social Commitments

General

- Achieve LEED certification for the building design and construction of the new facilities.
- Do not invest in any E&S Category A developments or companies, meaning "business activities with potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible, or unprecedented" (IFC, 2012).

Climate Change

- Use on-site renewable energy to power the facilities to the extent feasible.
- Monitor and report Scope 1 and 2 (and where appropriate Scope 3) GHG emissions on an annual basis.

Environment

- Do not use hydrofluorocarbons or other ozone depleting substances listed under the Montreal Protocol and its Amendments in the facilities refrigeration technology.
- Remain committed to utilizing Best Available Technique (BAT) for our logistics fleet.

Community

- Avoid physical and economic displacement, and where this is not possible identify land that is the least impacting and within a Category B profile.
- Avoid all impacts to critical cultural heritage as defined by IFC PS8[3].
- Avoid projects that directly impact Indigenous Peoples, triggering obtaining their Free, Prior and Informed Consent.
- Prioritise affected communities in the distribution of project benefits, e.g. employment, procurement of goods and services and community investment.

Biodiversity

- Avoid investing in projects with significant impacts to Legally Protected and Internationally Recognized Areas and Critical Habitat as defined by IFC PS6.

Product Safety

- Achieve local and international food safety certifications (those necessary for customer's clients) for CCSEAF's facilities.
- Pharmaceutical Safety & Certification

Governance and Business Integrity

- Conduct all business dealings with honesty, integrity, fairness, diligence and respect.
- Zero tolerance for bribery, corruption, fraud and unethical behaviour, whether under UK law or the law of the jurisdiction in which the portfolio company's asset(s) is located.
- Properly record, report and review financial and tax information.

2.7.0.2 Premise registration certificate and premise licence Managing E&S Sustainability across the investment lifecycle

CCSEAF is responsible for implementing its ESMS requirements for managing E&S risks and opportunities across each stage of the investment lifecycle, including:

- E&S screening against an exclusion/prohibited activities list (as a minimum based on the IFC Exclusion List (2007), but tailored to LP requirements) and identification of potential E&S red flags and opportunities;
- ESIA and other E&S studies scoped and scaled to the E&S risk level of the facilities;
- Review and consideration of E&S risks/impacts and opportunities identified by the ESIA by the Investment Advisory Committee;
- Incorporation of E&S terms including definition of standards and ESMMP devolved from the ESIA, and requirements for development of HSES management plans in line with these, into contractor and operating company legal agreements and contracts;
- Active stewardship and monitoring of E&S issues and opportunities, achieving alignment with the Applicable E&S Standards, and guiding positive E&S and climate outcomes where possible during ownership; and
- Articulation of E&S value creation during ownership at exit.

2.7.1 International Finance Corporation Performance Standards on Environmental and Social Sustainability, 2012

The IFC, a division of the WBG that lends to private investors, has a Sustainability Policy and set of PS on E&S Sustainability (January 2012). It should be noted that even for Projects that do not anticipate seeking financing from the IFC, the IFC PS are typically applied as a benchmark of international good practice.

The PS are directed towards providing 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 way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of direct investments for the IFC (including project and corporate finance provided through financial intermediaries), the IFC requires that its clients apply the PS to manage E&S risks and impacts so that development opportunities are enhanced (IFC, 2012). A number of lenders have adopted these IFC PS.

It should be noted that the project falls under 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."* (also refer to Section 3.1.0 on the screening of the Project per Rwandan laws and regulations).

A summary of the scope of the IFC PS and the applicability to the Project is set out in Table 2-8.

Table 2-8 IFC Performance Standards

No.	Title	Key Requirement	Relevance to the Project
1	Assessment and Management of Social and Environmental Risks and Impacts.	This PS relates to integrating and managing E&S performance throughout the life of a project in line with national regulations and international standards. The standard requires the development of an ESMS that entails a structured approach to managing E&S risks and impacts.	The proposed Project will be associated with some E&S impacts which will need to be appropriately managed.
2	Labour and Working Conditions	This standard aims to ensure that the client establishes, maintains and improves a worker-management relationship that promotes the fair treatment, non-discrimination and equal opportunity of workers, and compliance with national labour and employment laws and international standards (as defined by the International Labor Organisation (ILO). In particular, PS 2 addresses child labour and forced labour, and promotes safe and healthy working conditions, and protecting and promoting the health of workers by recognising the role of employees.	Project workers (for all Project phases) will need to be provided with fair labour and working conditions. This will apply to all categories of workers irrespective of whether directly engaged by the developer or contractor (direct workers), engaged through third parties (contracted workers), and workers engaged by the client's primary suppliers (supply chain).
3	Resource Efficiency and Pollution Prevention	This PS aims to abate pollution to air, water, and land that may threaten people and the environment at the local, regional, and global levels. This PS promotes the ability of private sector companies to adopt such technologies and practices where feasible.	All required resources will need to be used efficiently and all wastes managed in accordance with the waste management hierarchy, where avoidance of waste generation is the first priority to avoid or minimise pollution as much as possible.
4	Community, Health, Safety and Security	The role of this PS is to anticipate and avoid adverse impacts on the health and safety of the affected communities throughout the life of the project as a result of routine and non-routine events. The PS also requires an assessment of how use of security by the Project to safeguard personnel and property could impact on community security considering human rights.	Implementation of the proposed Project will need to ensure that the health, safety and security of local community members is not compromised.
5	Land Acquisition and Involuntary Resettlement	PS 5 aims to anticipate and avoid physical and economic displacement or, where avoidance is not possible, to minimise adverse social and economic impacts.	Not applicable since the Project site is located in an industrial zone devoid of any settlement and will not result in physical or economic displacement.
6	Biodiversity Conservation and Sustainable Management of Living Resource	This PS aims to protect and conserve biodiversity based on the UN CBD. It divides habitat into three categories, modified, natural, and critical, and guides on the required level of assessment for Projects in each type of habitat.	This PS is not applicable since the Project is located within modified habitats without any significant biodiversity value as described in detail in Chapter 6 of this report.

No.	Title	Key Requirement	Relevance to the Project
		For modified habitats [1], impacts on biodiversity should be minimised and mitigation measures implemented appropriately. For projects in natural habitat, mitigation measures should be designed to achieve no net loss of biodiversity where feasible. For projects in critical habitats, the project's mitigation strategy should be described in a Biodiversity Action Plan and be designed to achieve net gains of those biodiversity values for which the critical habitat was designated.	However, reference has been made to this standard when designing the mitigation measures such as those for the appropriate management of invasive plant species.
7	Indigenous Peoples	This PS deals with safeguarding Indigenous Peoples. The aim of this PS is to protect the interests of Indigenous Peoples during project implementation. On a broader scale, it requires project implementation to avoid adverse impacts on Indigenous Peoples as well as ensuring their participation and consent.	This PS does not apply since the Project Site located within a gazetted industrial zone devoid of any settlement. There are no people currently dependent on the Project Site and thus the Project will not result in either physical or economic displacement. There are no critical cultural heritage sites near the project sites that will be impacted by the project. Lastly, the project will not require relocation of indigenous peoples subject to traditional land ownership.
8	Cultural Heritage	Cultural heritage, according to this PS, refers to tangible forms of cultural heritage, such as tangible movable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.	This PS does not apply since the Project Site located within a gazetted industrial zone devoid of any cultural heritage.

[1] This Performance Standard applies to those areas of modified habitat that include significant biodiversity value, as determined by the risks and impacts identification process.

2.7.2 IFC General EHS Guidelines

The EHS Guidelines are technical reference documents that address the IFC's expectations regarding the EHS performance of its projects. They are designed to assist managers and decision makers with relevant industry background and technical information. This information supports actions aimed at avoiding, minimising, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility. The EHS Guidelines serve as a technical reference source to support the implementation of the IFC PS.

General EHS Guidelines exist which contain information on cross-cutting EHS issues potentially applicable to all industry sectors; these are listed Box 2.1.

Box 2.1 IFC General EHS Guidelines

1. Environmental
1.1 Air Emissions and Ambient Air Quality
1.2 Energy Conservation
1.3 Wastewater and Ambient Water Quality
1.4 Water Conservation
1.5 Hazardous Materials Management
1.6 Waste Management
1.7 Noise
1.8 Contaminated Land

2. Occupational Health and Safety
2.1 General Facility Design and Operation
2.2 Communication and Training
2.3 Physical Hazards
2.4 Chemical Hazards
2.5 Biological Hazards
2.6 Radiological Hazards
2.7 Personal Protective Equipment (PPE)
2.8 Special Hazard Environments
2.9 Monitoring

3. Community Health and Safety
3.1 Water Quality and Availability
3.2 Structural Safety of Project Infrastructure
3.3 Life and Fire Safety (L&FS)
3.4 Traffic Safety
3.5 Transport of Hazardous Materials
3.6 Disease Prevention
3.7 Emergency Preparedness and Response

4. Construction and Decommissioning
4.1 Environment
4.2 Occupational Health and Safety
4.3 Community Health and Safety

Where applicable, the abovementioned EHS Guidelines will be applied to the proposed Project.

2.7.3 Integrated Safeguard System of the African Development Bank

The ISS was adopted by the AfDB on 7th December, 2013. The ISS outlines the AfDB's strategy to promote growth that is both socially inclusive and environmentally sustainable.

The AfDB requires that all borrowers/clients comply with the ISS requirements during all Project preparation and implementation processes. A brief description of each of the Operational Safeguards is included in Box 2.2.

Box 2.2 AfDB ISS Operational Safeguards

Operational Safeguard 1: Environmental and Social Assessment
This overarching safeguard governs the process of determining a project's E&S category and the resulting E&S assessment requirements.

Operational Safeguard 2: Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation
This safeguard consolidates the policy commitments and requirements set out in the AfDB's policy on involuntary resettlement and incorporates a number of refinements designed to improve the operational effectiveness of those requirements. This is not applicable to the proposed Project.

Operational Safeguard 3: Biodiversity and Ecosystem Services
This safeguard aims to conserve biological diversity and promote the sustainable use of natural resources. It also translates the commitments in the AfDB's policy on integrated water resources management into operational requirements.

Operational Safeguard 4: Pollution Prevention and Control, Hazardous Materials and Resource Efficiency
This safeguard covers the range of key impacts of pollution, waste, and hazardous materials for which there are agreed international conventions, as well as comprehensive industry-specific and regional standards, including greenhouse gas accounting, that other multilateral development banks follow.

Operational Safeguard 5: Labour Conditions, Health and Safety
This safeguard establishes the Bank's requirements for its borrowers or clients concerning workers' conditions, rights and protection from abuse or exploitation. It also ensures greater harmonisation with most other multilateral development banks.

2.7.4 Parameter Specific International Guidelines

2.7.4.0 IFC EHS Guidelines – 1.1 Air Emissions and Ambient Air Quality

The IFC recommends that the air quality guidelines as set out by the World Health Organisation (WHO) be utilised in such an assessment. The WHO standards are divided into a number of stages, which have interim targets and a final guideline target. The WHO guidelines are recognised to be particularly conservative, as they make no consideration of the economic burden of achieving the stipulated guidelines. The WHO final guideline target is aspirational, and as such, this target should be progressively worked towards. In the case of the proposed Project, progression towards the achievement of the final guideline target may be assisted by regulatory changes to the quality of fuel used for construction and project-owned vehicles (for example, low sulphur fuels) and the regular maintenance and potential mandatory testing of those vehicle emissions.

On the basis of the above, Table 2-3 sets out the Rwandan ambient air quality tolerance limits for dust (as defined in *Section 2.4.7*), which will be used for this assessment, given the Project location and low risk of air quality impacts as a result of Project activities.

2.7.4.1 IFC EHS Guidelines – 1.3 Wastewater and Ambient Water Quality

IFC EHS Guideline 1.3 specifies that discharges 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.

As Rwanda has water quality criteria / standards for effluent discharge into the environment (refer to *Section 2.4.3*), these will be used in this assessment.

2.7.4.2 IFC EHS Guidelines – 1.4 Water Conservation

Mechanisms included in the water conservation guidelines include –

- The setting of targets for water use, and monitoring of water flows against these targets;
- Water reuse where possible; and
- Reducing leaks and making more efficient use of water within the water reticulation system.

This will be achieved through the reuse of water in the cooling systems.

2.7.4.3 IFC EHS Guidelines – 1.7 Noise

The IFCs EHS Guidelines – *General EHS Guidelines: Environmental Noise Management 1.7 Noise* (IFC 1.7 Noise) is an internationally recognised guideline document containing information for the assessment and management of noise.

Table 2-9 presents the IFC noise guidelines that should not be exceeded at the nearest Noise Sensitive receptor locations offsite. In addition to the absolute values provided in Table 2-9, the IFC also requires that noise increase above existing (background) levels should not exceed 3 dB.

Table 2-9 IFC Noise Level Guidelines

Receptor	One Hour L_{Aeq} (dB(A))	
	Daytime (07:00 – 22:00)	**Night (22:00 – 07:00)**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

LAeq = A-weighted equivalent sound levels over a measurement period, dB(A) = A-weighted decibel

IFC Guidelines are designed to apply to noise emissions from facilities and stationary noise sources such as factories. The value of 70 dB(A) at the property boundary differs to the Rwandan standard; hence the Rwandan noise standards for Industrial Areas of 75 dB(A) and 70 dB(A) for day and night time at the property boundary will apply to this Project.

2.7.5 Institutional Framework

The overall authority for implementation of the E&S mitigation measures and management plans will be the Project Proponent's Environmental and Social Governance (ESG) Director who will have an oversight of the ESMS implementation on a day-to-day basis, including E&S Manager activities. The Project Proponent's Managing Director will be ultimately responsible in ensuring that the Project team discharge their respective E&S duties.

A summary of other organisations that are relevant to the Project are provided in Table 2-10 and explained in more details in Chapter 10 of this report.

Table 2-10 Institutional Framework

Organisation	Responsibilities
REMA	▪ General supervision and, co-ordination of all matters relating to the environment. REMA is the principal instrument in Government in the implementation of all policies relating to the environment. ▪ REMA is also responsible for monitoring compliance with all the environmental regulations. ▪ REMA annual audit report required to be submitted.
RDB	▪ By delegation from REMA since 2009, RDB shall receive and review ESIA report, authorise the project to proceed by issuing an EIA certificate and also periodically monitor the project activities to ensure mitigation measures are implemented and that it has no adverse impacts on the environment
PEZ	▪ PEZ is the established entity responsible for the review and approval of the plans for all developments within KSEZ, before relevant approvals from other third parties is sought. It also monitors the implementation of all projects within KSEZ. In particular, the Project's designs/ plans will be approved by the PEZ before submission to the CoK OSC. ▪ PEZ will facilitate in land acquisition of the project plots by issuing sales agreement to the developer.
CoK OSC	▪ Monitor the implementation of health and safety plans for construction and operation workers and members of public coming into contact with construction activities.
	▪ Monitor developments within Kigali. ▪ Review master plans for compatibility with the approved zoning.
Ministry of Health	▪ Surveillance of public health with respect to workers and affected communities, especially in regard to HIV/AIDS and other communicable diseases. ▪ Identify suitable linkages between the Project and health facilities including emergency access.
RLMUA	▪ Facilitate land title acquisition upon complete payment of the sales agreement to PEZ. ▪ Monitor compliance with the approved land zone requirements.

3. METHODOLOGY AND APPROACH

3.0 ESIA Objectives

The objectives of the ESIA are to:

- Identify all potentially significant adverse E&S impacts of the Project and recommend measures for mitigation.
- Gather baseline data (e.g., through stakeholder engagement) to inform the assessment of impacts and to monitor changes to the environment as a result of the Project as well as evaluate the success of the mitigation measures implemented.
- Recommend measures to be used to avoid or reduce the anticipated negative impacts and enhance the positive impacts.
- Prepare an ESIA Project Report compliant to the Environmental (Impact Assessment and Audit) Regulations of 2018 and 2019, detailing findings and recommendations for review by RDB.

3.1 Methodology

3.1.0 Screening

The proposed Project was screened to determine the need to undertake an ESIA based on:

- Project characteristics;
- Whether the project components and activities fit the lists the projects that must undergo an EIA as per Ministerial order no.001/2019 establishing the list of projects that must undergo EIA, instructions, requirements and procedures to conduct EIA; and
- IFC PS on E&S Sustainability, 2012.

A reconnaissance site visit was carried out on 2nd November 2022. The purpose of the site visit was to familiarise the Project Team with the Study Area and to collect primary E&S baseline data to inform the required level of assessment.

Based on the site reconnaissance and project component review, it was concluded that an ESIA resulting in the preparation of an ESIA Project Report would be required for the proposed Project due to the following aspects:

- As stated in the Ministerial order No.001/2019, it establishes the list of projects that must undergo environmental impact assessment, instructions, requirements and procedures to conduct EIA. Annex 1 of the Ministerial order contains the list of projects that must undergo a full EIA. Among the projects eligible are; warehouses and storage facilities of perishable agricultural commodities occupying an area of half a hectare (1/2 ha) and above, industries, warehouses for storage of hazardous items or perishables, warehouse with total floor area exceeding 1500m^2 and plot size exceeding 1000m^2.
- The CSRL TCSF shall be a storage facility of perishable commodities, could have a floor area that exceeding 1500m^2 and exceed plot sizes of 1000m^2, hence screened to require an ESIA.
- However, a Project Brief shall be entered into the RDB E-portal along with proposed Terms of Reference for RDB to review, a site visit will be conducted and approval for the Project to carry out an ESIA will be attained.

3.1.1 Baseline Data Collection

In order to understand the existing baseline E&S conditions in the Study Area, a variety of data collection methods were used. These are described below:

3.1.1.0 Remote Sensing and GIS Analysis

Remote sensing was undertaken and ground-truthed in the field by the consultants at the time of the site visit. Remote sensing was based on available satellite imagery of the Project Site.

3.1.1.1 Document Review

A literature review was undertaken based on the findings of the reconnaissance process, which involved reviewing legislation, policies, the CSRL Concept Design Report, PEZ checklist, and previous studies carried out in the area to determine the baseline conditions and establish the legal, institutional and biophysical/socio-economic environmental setting of the Project area.

The desk-based study also included the development of fieldwork tools, fieldwork schedules as well as the approach to stakeholder engagement as outlined in the SEP (**Appendix C** of this Report).

3.1.1.2 Site Visits

A site investigation was undertaken on Wednesday 2nd November 2022 during which detailed E&S baseline data was collected and preliminary stakeholder engagement was undertaken. Data was collected through:

- Sharing the Project's BID, and presented as Appendix D) to identified formal stakeholders and requesting them to share their views/ comments on the proposed Project;
- KII especially with the technocrats of the relevant institutions; and
- Site walkovers.

Photography and GPS were used to record the salient features and baseline conditions at the Project sites and surroundings environment.

3.1.2 Impact Assessment Methodology

3.1.2.0 Impact Assessment Process

The purpose of impact assessment is to identify and evaluate the significance of potential impacts on identified receptors and resources according to defined assessment criteria and to develop and describe mitigation measures that will be taken to avoid or minimise any potential adverse effects and to enhance potential benefits.

The impacts of the proposed Project were identified based on the findings of stakeholder consultation, the existing baseline conditions, the proposed Project activities and professional knowledge of the consultants. Impacts are first distinguished as either positive or negative (*Chapter 9* of this Project Report). The cross-sectoral issues and aspects are: health; safety; air quality, especially dust; waste management; social aspects particularly labour recruitment and management; infrastructure, and utilities.

3.1.2.1 Definition of Key Terminology

- **Project**: The features and activities that are a necessary part of the Project Proponent's development plans without which the Project cannot proceed. The Project is also the collection of features and activities for which authorisation is being sought.
- **Project Site**: The (future) primary operational area for the Project activities.
- **Project Footprint**: The area that may reasonably be expected to be directly affected by Project activities, across all phases. The Project Footprint includes land used on a temporary basis such as construction lay down areas, materials yards, borrow pits or construction haul roads, as well as disturbed areas in transport corridors, both public and private.
- **Area of Influence**: The area where impacts could reasonably be expected.

- **Project Area**: Also referred to as the Study Area is the area that needs to be studied in order to adequately understand and describe the baseline likely to be affected by the Project. The Project Area encompasses the Project Footprint, Project Site and the Area of Influence.

3.1.2.2 Impact Types and Definitions

An impact is any change to a resource or receptor brought about by the presence of a Project component or by the execution of a Project related activity. The evaluation of baseline data provides crucial information for the process of evaluating and describing how the Project could affect the bio-physical and socio-economic environment.

Impacts are described according to their nature or type, as summarised in Table 3-1.

Table 3-1 Impact Nature and Type

Nature or Type	Definition
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct impact	An impact that results from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect impact	An impact that results from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
Induced impact	An impact that results from other activities (which are not part of the Project) that happen as a consequence of the Project (e.g., influx of camp followers resulting from the importation of a large Project workforce).
Cumulative impact	An impact that acts together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.

3.1.2.3 Assessing Significance

Impacts are described in terms of 'significance'. Significance is a function of the **magnitude** of the impact and the **sensitivity/vulnerability/importance of resource/receptor**.

Determining Impact Magnitude

Impact magnitude (sometimes termed severity) is a function of the **type, extent, duration, scale** and **frequency** of the impact. These characteristics apply to both planned and unplanned events/ impacts and are briefly described in Table 3-2.

An additional characteristic that pertains **only to unplanned events** is **likelihood**. The likelihood of an unplanned event occurring is designated using a qualitative scale, as described in *Table 3-3*.

Table 3-2 Impact Characteristics Terminology

Characteristic	Definition	Designations
Type	A descriptor indicating the relationship of the impact to the Project (in terms of cause and effect) as explained in *Table 3-1*.	Direct Indirect Induced
Extent	The "reach" of the impact (e.g., confined to a small area around the Project	**Local** - impacts that affect an area in a radius of 20km around the development site.

Characteristic	Definition	Designations
	Footprint, projected for several kilometres, etc.).	**Regional** - impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem. **International** - impacts that cross national borders, affect nationally important environmental resources or affect an area that is nationally important/or have macro-economic consequences.
Duration	The time period over which a resource / receptor is affected.	**Temporary** - impacts are predicted to be of short duration and intermittent/occasional. **Short-term** - impacts that are predicted to last only for the duration of the construction period. **Long-term** - impacts that will continue for the life of the Project but ceases when the Project stops operating. **Permanent** - impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the Project lifetime.
Scale	The size of the impact (e.g., the size of the area damaged or impacted, the fraction of a resource that is lost or affected, etc.)	[no fixed designations; intended to be a numerical value or a qualitative description of "intensity"]
Frequency	A measure of the constancy or periodicity of the impact.	[no fixed designations; intended to be a numerical value or a qualitative description]

Table 3-3 Definition for Likelihood Designations

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions.
Possible	The 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).

The overall magnitude of an impact is a combination of the above characteristics. The universal magnitude designations are:

- Negligible;
- Small;
- Medium; and
- Large.

Determining sensitivity/vulnerability/importance of resource/receptor

There are a range of factors to be considered when defining the sensitivity/vulnerability/importance of the resource/receptor, which may be physical, biological, cultural or human. Other factors may also be considered when characterising sensitivity/vulnerability/importance, such as legal protection, government policy, stakeholder views and economic value.

As for the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent, but the definitions for these designations vary on a resource/receptor basis. The sensitivity/vulnerability/importance designations used herein for all resources/receptors are:

- Low;
- Medium; and

- High.

Table 3-4 presents an illustrative example of the sensitivity/vulnerability/importance of the resource/receptor.

Table 3-4 Illustrative Example of Sensitivity/Vulnerability/Importance of the Resource/Receptor

Designation	Receiving environment	
	Biophysical environment	**Socio-economic environment**
Low	The impact affects the environment in such a way that natural functions and processes are not affected.	People/communities are able to adapt with relative ease and maintain pre-impact livelihoods.
Medium	Where the affected environment is altered but natural functions and processes continue, albeit in a modified way.	People/communities are able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.
High	Where natural functions or processes are altered to the extent that they will temporarily or permanently cease.	Affected people/communities will not be able to adapt to changes or continue to maintain-pre impact livelihoods.

Determining Impact Significance

As earlier stated above, impact significance is a function of the magnitude of the impact and the sensitivity/vulnerability/importance of resource/receptor. As presented in Table 3-5 below, the impact significance can be Negligible, Minor, Moderate or Major.

Table 3-5 Impact Significance

SIGNIFICANCE				
		Sensitivity/Vulnerability/Importance of Resource/Receptor		
MAGNITUDE		Low	Medium	High
	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	High	Moderate	Major	Major

Table 3-6 below presents a brief description of the different categories of Impact Significance.

Table 3-6 Significance Definitions

Significance definitions	
Negligible significance	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
Minor significance	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate significance	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.

Major significance	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the ESIA process is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects, there may be major residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied). An example might be the visual impact of a development. It is then the function of regulators and stakeholders to weigh such negative factors against the positive factors such as employment, in coming to a decision on the Project.

Note: It is important to note that the positive impacts are not rated, merely stated. It is considered sufficient for the purpose of the Impact Assessment to indicate that the Project is expected to result in a positive impact, without characterising the exact degree of positive change likely to occur. However, positive impacts are presented quantitatively where possible.

3.1.2.4 Identification of Mitigation and Enhancement Measures

For activities with significant impacts, the ESIA process is required to identify, in collaboration with the Project Proponent, suitable and practical mitigation measures that can be implemented. Mitigation that can be incorporated into the Project design, in order to avoid or reduce the negative impacts or enhance the positive impacts, have been defined and require final agreement with the Project Proponent as these are likely to form the basis for any conditions of approval by RDB. The implementation of the mitigation is ensured through compliance with the ESMMP.

3.1.2.5 Residual Impact Evaluation

After first assigning significance in the absence of mitigation, each impact is re-evaluated assuming the appropriate mitigation measure(s) is/are effectively applied, and this results in a significance rating for the residual impact.

3.2 Reporting

As a result of the ESIA process, a comprehensive ESIA Report (this document) was developed for submission to RDB for review and consideration for approval.

3.3 Assumptions and Limitations

ESIA is a process that aims to identify and anticipate possible impacts based on past and present baseline information and details of the proposed Project. As the ESIA deals with the future, there is, inevitably, always some uncertainty about what will happen.

Impact predictions have been made based on field surveys and with the best data, methods and scientific knowledge available at this time. However, some uncertainties could not be entirely resolved. Where significant uncertainty remains in the impact assessment, this is acknowledged, and the level of uncertainty is provided.

In line with best practice, this ESIA Report has adopted a precautionary approach to the identification and assessment of impacts. Where it has not been possible to make direct predictions of the likely level of impact, limits on the maximum likely impact have been reported and the design and implementation of the Project (including the use of appropriate mitigation measures) will ensure that these are not exceeded. Where the magnitude of impacts cannot be predicted with certainty, the team has used professional experience and available scientific research from similar projects worldwide to judge whether a significant impact is likely to occur or not. Throughout the assessment, this conservative approach has been adopted to the allocation of significance.

4. PROJECT DESCRIPTION

4.0 Introduction

This Chapter provides an overview of the Project location, the design and the activities that will be undertaken during the different Project phases including construction, operation and maintenance (O&M) and decommissioning.

The information contained in this chapter is sourced from:

- The Project Concept Design Report;
- Engineering drawings; and
- The experience of the ARCH/CSRL development team in constructing and operating similar facilities globally.

4.1 Project Location and Regional Setting

The proposed Project site is located in the KSEZ, Munini Village, Masoro Cell, Ndera Sector, Gasabo District on the outskirts of the CoK, 4 km from the Kigali international airport and 12 km from the city centre along the central transport corridor (to Dar es Salaam).

Figure 4-1 shows the Project location while an overview of the KSEZ is presented in

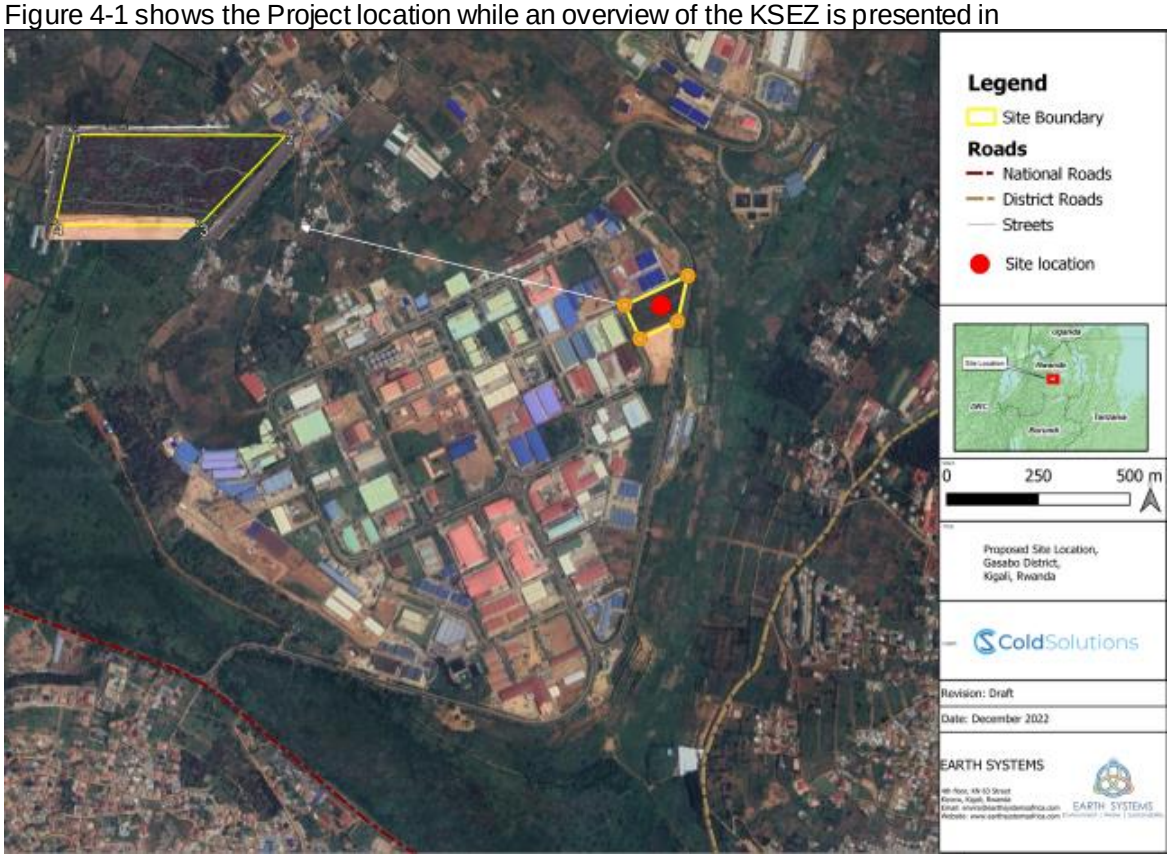


Figure 4-2.

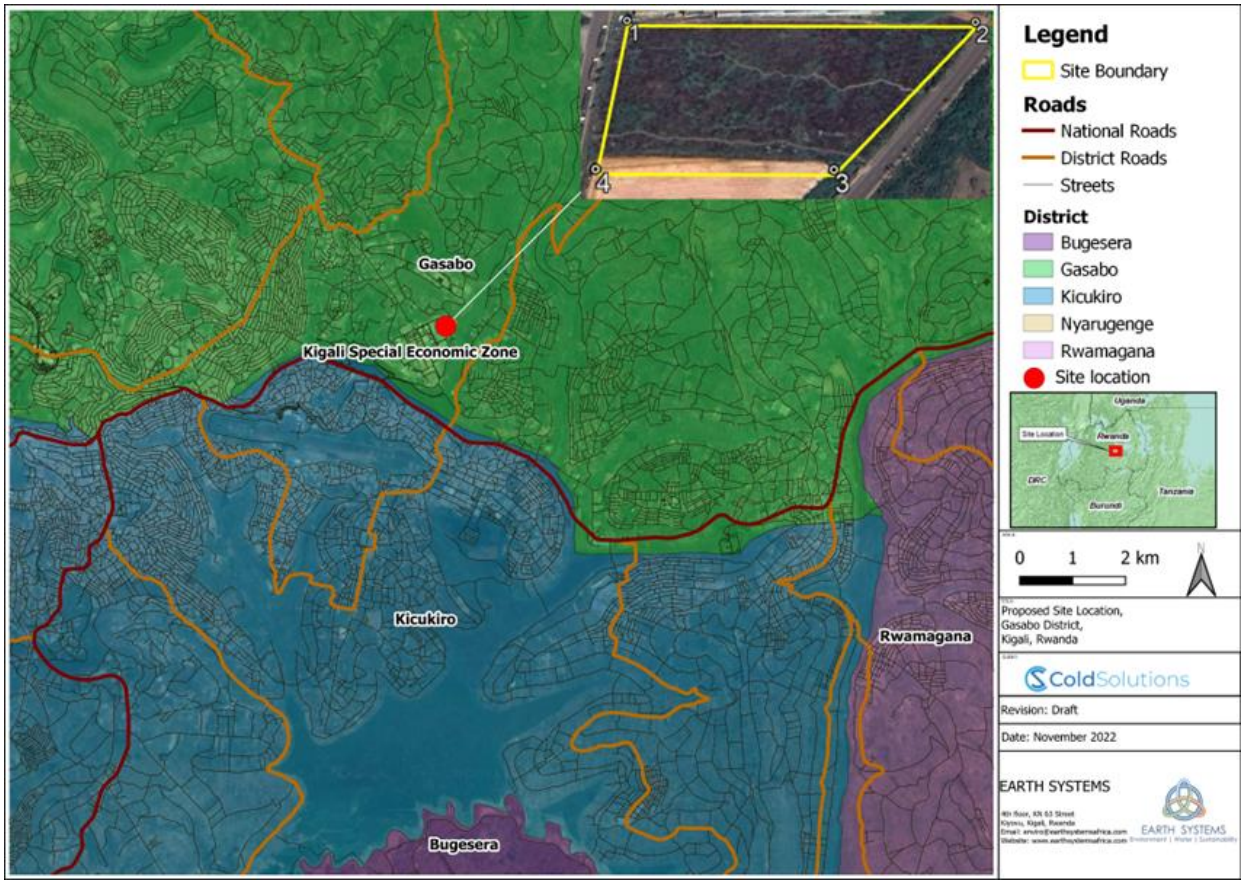


Figure 4-1 Location of the Project Site

Figure 4-2 Overview of KSEZ

For details on land use within the Project Area, please refer to 7.4 of this report.

4.2 Project Overview and Layout.

The Project involves the construction and operation of up to 10,000 m^2 cold storage warehouse, including end to end logistics for customers. As such, the main Project components comprise:

- 7 individual temperature-controlled chambers
- Temperature controlled warehouse with capacity for approximately 10,000 pallets of storage.
- Utility infrastructure including:
  - An onsite WWTP for treatment and recycling of water used in the refrigeration system and for water used in light food processing (washing and packaging of fruits and vegetables); Up to 50% of treated water will be recycled back into the cooling system;
  - An integrated power system comprising roof-top solar PV system and a diesel-powered backup generator in case of grid outages (to service 2-3 MW power demand);
  - Supporting facilities including office space, ablution facilities, and a guardhouse.
- 8-10 cross-docking bays for loading and un-loading of goods.
- End-to-end customer logistics serviced by 12 refrigerated vehicles.

Figure 4-3 provides conceptual layout of the Project facility including the superstructure and docking bays.

Figure 4-3 Conceptual Layout of the proposed Project

4.3 Key Project Components

This section outlines key Project components outside of the warehouse structure itself which is covered under construction activities.

4.3.0 Sub and Superstructure Components

Table 4-1 outlines the main structural components of the sub and superstructure.

Table 4-1 Sub and Superstructure Structural Components

Component	Description
Below ground infrastructure	Utility infrastructure including mains water, sewage drainage and surface water/stormwater drainage. A wastewater treatment plant will also be installed below ground (see Section 4.3.1 on Utilities Infrastructure section below).
Foundations and ground floor slab	Suitable base footings will be installed to support the carry loads imposed by the structure outlined in the detailed design. The ground floor slab will be reinforced concrete able to withstand a uniformly distributed loading of 50kN/m^2 and the racking load.
Steel frame	The steel frame structure will be constructed to a height of 24 metres and allow for 9 m spacing between columns for bay spacing. The steel framework will be designed to accommodate the building loads specified in the detailed design.
Warehouse roof cladding	Roof cladding will be steel sheeting supported by galvanised steel/purlin system capable of supporting the roof-top solar installation.
Warehouse external walls	Elevation of external walls shall comprise of block work and concrete work at the ground floor level to a height of 4.5 m. The remaining warehouse walls shall consist of vertically laid proprietary composite polyisocyanurate (PIR) insulated panels.
Warehouse internal walls	Partition walls for separating zoning for operational purposes in conformance with the detailed design.
Dock system	The building is to accommodate dock levellers, dock shelters (collapsible / inflatable) and dock doors & required steel structure & cladding.

4.3.1 Utilities Infrastructure

Utility infrastructure required includes grid-connected power, water supply and sewage treatment which are all provided by the management of KSEZ to its customers. The Project will have its own WWTP and power backup solutions in addition to these services.

4.3.1.0 Power

There is existing power supply to KSEZ provided by the government.

In addition to the grid supplied power, the Project will install:

- Roof-top solar PV sized to the maximum supporting capacity and size of the roof space (approximately 1 MW); and
- A back-up diesel powered generator sized to meet the total power demand of the facility. Given that power is critical for maintaining a temperature-controlled environment, a back-up generator is required.

4.3.1.1 Water Supply

Water within the KSEZ is provided by the government, specifically, Kigali Municipality. The facilities within the Project Area are currently connected to the Kigali Municipal water supply system (please refer to Section 7.6 for more details on existing water supply).

4.3.2 Wastewater Treatment

The existing water supply and sewerage management facilities within the KSEZ has trunk sewer lines comprising Polyvinyl Chloride (PVC) pipes laid along the road reserves of the KSEZ's service corridors connected to all plots.

The Project will also have an on-site WWTP installed below the ground floor of the facility. This will treat and recycle water used in the refrigeration technology undertaken on site, for example packaging of fruits and vegetables. The WWTP will discharge effluent treated to national discharge standards into the existing sewage trunks. Daily cooling water demand is 60m^3. Water will also be required for staff, ablution facilities and food processing activities in significantly smaller quantities than the cooling system demand.

4.3.3 Cooling System

The choice of cooling technology will be finalised during the detailed design and procurement of the EPC contractor. In all cases, the system will be based on a natural refrigerant gas from Ammonia. An overview of the choice of refrigerants is presented in Chapter 5 (Analysis of Alternatives). The two options considered most likely at this juncture in the design process are:

- An entirely ammonia-based chiller system;
- This will include an indoor (fully secured) ammonia storage tank with a capacity of about 7 tonnes.
- A cascade system using Ammonia (R717) for the first stage and Carbon Dioxide (R744) for the second stage.

Each of these systems are considered acceptable from an E&S perspective, with each offering different technical and commercial benefits. All natural refrigerants have zero ODP and zero GWP in the case of Ammonia and a GWP of 1 in the case of Carbon Dioxide. Ammonia however is both toxic and flammable and therefore presents additional health and safety risks arising from leaks or system malfunctions. However, these are managed successfully globally as assessed in detail in Chapter 9 and included in the ESMMP in Chapter 10.

Figure 4-4 presents an overview of how a cascade system functions.

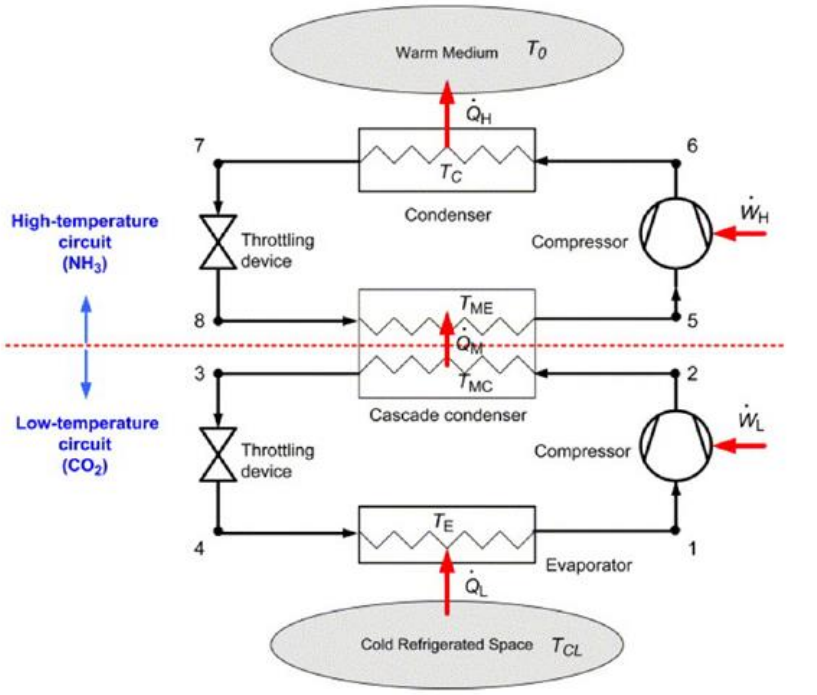


Figure 4-4 Overview of Cascade Refrigeration System

4.3.4 Building Management System

A fully integrated computer (PC) based Building Management System (BMS) incorporating Direct Digital Control (DDC) Energy Management, Equipment Monitoring and control of building services installations shall be installed.

The BMS shall be fully integrated to provide the end-users with full control, monitoring and management functions, based on a common computer operating system and operating procedures.

The BMS shall interface with the master control system whereby if an alarm is triggered (fire alarm, leak) a full shutdown of plant will be implemented.

4.3.5 End-to-End Logistics

The Project will include end-to-end logistics to service its customer base comprising 8-10 inner city/long haul refrigerated trucks ranging in size from 3 tonne to 20 tonne weight. The fleet will likely comprise of diesel trucks with a self-powered refrigeration unit attached to the trailer. CSRL will procure new trucks to ensure the most efficient and up to date technology is used. Examples of the type of trucks envisaged are presented in Figure 4-5.

The Project fleet are expected to service the Kigali metropolitan area but there will also be long-haul trips to produce aggregators and customers located in areas throughout Rwanda. At this stage, it is impossible to determine the profile of trips since this is based on a CSRL customer base, which will become clearer closer to Project Commercial Operation Date (COD).

Figure 4-5 Examples of Refrigerated Trucks

4.4 Project Development Programme

The main Project development milestones are outlined in Table 4-2. The construction phase is expected to be up to 12 months with operations commencing in Q2 2023

Table 4-2 Project Development Programme

Development Milestone	Timeline
Project Design and Construction Permits	Q1 2022 – Q2 2022
Procurement and Construction Phase	Q2 2023 – Q3 2024
COD	Q4 2024

4.5 Project Preparation and Construction Phase Overview

4.5.0 Construction Phase Activities

This section outlines the activities that will take place during the Project preparation and construction phases of the Project. These are illustrated in Table 4-5 On-site Construction Plant EquipmentTable 4-5.

Table 4-3 Construction Phase Activities

Phase	Activity	Description
Project Preparation	Land Acquisition	Negotiation and completion of long-term leasehold with RPPC
	Technical Studies	Topographical, geotechnical and ESIA studies.
	Facility Design	Concept and detailed design of the facility to feed into the ESIA and for KSEZ/RDB design approval.
	Construction permit application	Submission of detailed designs (i.e. architectural, structural, MEP) and ESIA certificate, all to CoK OSC for approval and issuance of the construction permit for the project.
Construction Phase	Site Preparation	Site clearing and enabling works including cut and fill for plot levelling.

	Below ground works	Civil works associated with the installation of surface, stormwater, foul water and sewage drainage.
	Foundations and concrete slab	Installation of a concrete foundation with uniform distributed loading capacity of 50/kN/$m^{2.}$
	Warehouse superstructure	Construction of the warehouse superstructure including steel framework, roof cladding and external walls.
	Internal structures	Construction of internal refrigeration chambers, racking and supporting facilities.
	Electrical and Mechanical	Installation of refrigeration technology and power solution
	Finishing Works	Installation of windows, doors and finishing activities such as painting and landscaping.

4.5.1 Land Acquisition

The proposed option site is owned by RPPC. The land for KSEZ phase I in which this plot is located was acquired by GoR dating back to 2006 and passed on to the PEZ in 2008 to install necessary infrastructure and manage it. Given the long period of time since its acquisition (over 15 years ago) and the number of industries and activities already completed in phase 1 of the KSEZ and already expanding to Phase 2, no land related issues are known to be outstanding in relation to the land for Phase 1 of the KSEZ.

CSRL is in the process of acquiring the project site, which consists of 3,7 acres/15,167 sqm area, through a leasehold agreement with the Republic of Rwanda. Under this agreement, CSRL will have the right to develop and operate the Project during this period subject to the approval of the designs by the RDB.

4.5.2 Materials, Waste and Emissions

The materials required and waste streams associated with the construction of the Project are outlined in Table 4-4.

Table 4-4 Project Materials and Waste Streams

Item	Local/Imported	Description
Materials		
Fill	Local	The two plots are relatively flat; however, there is a 3-meter level difference between them and will require the standard cut and fill along with retainer walls.
Concrete (cement)	Local	Concrete foundation for the sub and superstructure and docks. Concrete will be transported, ready mixed, from a batching plant on site for pouring.
Steel	Local	For the framework of the warehouse superstructure.
Roof cladding	Local	Steel sheets for roof cladding capable of supporting the solar PV installation.
External wall	Local (if available)	External wall panelling typically in prefabricated modules.
Internal cooling chambers	Imported	Module panels made from PIR foam.

Internal racking system	Local/Imported	Steel framed racking system for storing pallets within the refrigerated chambers. Racking will be up to six pallets equivalent high.
Cooling System	Imported	Cooling system based on natural gas technology.
Power system	Imported	Solar PV based power solution with option of battery storage being considered. A back-up generator sized to facility demand will be necessary for grid outages.
Finishing items	Local	Paints, office furniture, landscaping materials.
Fuel	Local	Diesel for pumps, trucks, small concrete mixers, compactors, earthmoving equipment.
Waste and Emissions		
Vegetation	n/a	Grass and small shrubs from plot clearing.
Packaging	n/a	General construction packaging waste including pallets and plastics from construction materials and electrical and mechanical equipment.
Construction/ civil works waste	n/a	From civil work activities such as excavations, levelling, and existing debris.
General household type waste	n/a	From presence of construction workforce onsite.
Liquid waste	n/a	From temporary ablution facilities.
Hazardous waste	n/a	Paints/lubricants/solvents used for finishing.
Liquid waste	n/a	From ablution facilities, food processing and refrigeration cooling water. All the liquid waste will be managed as described in Section 4.3.2.
Oils and lubricants	n/a	Small quantities used in maintenance of vehicles and electrical and mechanical equipment.
Emissions	n/a	Emissions to air from the operation of diesel fuelled equipment, automobiles and generators including NO_x, CO_2, CO and PM/ dust from land clearing activities. These are expected to be short in duration and localised. There will also be short periods of dust generation associated with site preparation and civil works.

4.5.3 Utilities Demand during Construction

Demand for power and water during construction is expected to be low based on the construction activities outlined and the prefabricated nature of the infrastructure. These will be serviced as follows:

- Power demand associated primarily with handheld mechanical tools, will be serviced by small generators.
- Water demand, used for dust suppression, cleaning and drinking water for workers, will be provided by municipal through the existing mains system.
- Wastewater associated with temporary ablution facilities on site will be collected by a licensed liquid waste disposal company or discharged directly to the sewer system if feasible.

4.5.4 Construction Equipment

Table 4-5 outlines the type of equipment that will be present on site during the construction phase. It does not include vehicles and equipment used to transport materials to and from the site (e.g. concrete mixers and trailers).

Table 4-5 On-site Construction Plant Equipment

Type of Plant	Number
Bulldozer	3
Grader	2
Excavator	3
Crawler Crane	2
Trucks (including concrete mixers, tippers and not including delivery trucks)	7

4.5.5 Construction Workforce and Accommodation

The construction workforce will vary at different times during construction phase but will have a peak on site presence of approximately 250 people during construction. With the exception of construction oversight and complex electrical and mechanical work, most importantly the cooling system installation, the majority of positions will be filled through the local workforce.

The following workers are envisaged for the construction phase:

- 50-100 general labourers;
- 20 plant operators;
- 10-30 skilled workers including electricians, plumbers and cooling specialists;
- Construction oversight team of the main Engineering, Procurement and Construction (EPC) Contractor; and
- 8 security guards for 24-hour shifted site supervision.

Since the majority of the workforce is drawn from the local labour pool, only expats, who will be few in number (if any), will require accommodation. In these instances, they will be accommodated in hotels or guesthouses meeting DFI requirements[6].

4.6 Operations and Maintenance Phase Overview

The operations phase is concerned with the movement, sorting, and storing of goods within the warehouse. It is typically low impacting with the main E&S impacts associated with the energy demand, community health and safety, occupational health and safety and movement of vehicles as assessed in detail in Chapter 9.

4.6.0 Operations Phase Activities

Table 4-6 outlines the activities performed during this phase.

Table 4-6 Operation Phase Activities

Activity	Description
Packing	Un-packing of pallets received and packing of goods to deliver to clients.
Storage of Pallets	Storing of pallets in the cooling chambers and ripening rooms.
Food Packhouse	Light food packaging to allow customers arrange, pack, label products prior to market distribution.
Maintenance of Plant	General maintenance of the facility and cooling system and light maintenance of the truck fleet.

[6] As specified in the IFC/EBRD Guidance Note: Workers' Accommodation: Processes and Standards (2009). Available at: https://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf

Docking Activities	Un-loading and loading of trucks at the docking bays.
Office Administration	Office based administration activities including accounts and customer administration.

4.6.1 Operational Flow

The facility will be constructed to include a total of 7 individual temperature-controlled chambers for storage purposes. Each of these chambers will have a temperature control ranging from +25°C to -25°C (or -30°C). The chambers will be designated for the following specific sectors and products to avoid the risk of mixing different products and contamination during storage, among others:

- Three chambers for the storage of pharmaceutical products (at -25°C);
- One chamber for storage of frozen food or pharmaceuticals depending on demand for storage space – to be determined during the operations phase (at -25°C);
- Two Chambers for storage of frozen foods (at -25°C);
- Two chambers for storage of frozen food that require much lower temperatures such as seafood and ice cream (at -30°C);
- Three chambers for storage of flexible chilled and frozen products (at +25°C to -25°C); and
- Two chambers for storage of chilled products such as fresh fruit and vegetables (at +25°C to 0°C).

In addition to the storage chambers/rooms there will be four blast freezing rooms capable of reducing the product temperature by - 18°C in a 24-hour period on average and four chilled rooms capable of reducing warm product to chilled temperatures (above 0°C).

For ease of loading and offloading at the different storage chambers, the facility will have a total of nineteen temperature-controlled loading bays. This will enable the trucks/vehicles to dock and be loaded/offloaded close to the various storage chambers as much as possible (depending on the type of goods that require loading/offloading). The loading/offloading bays will be capable of handling, from 30-ton rear loading refrigerated vehicles, 40-foot and 20-foot containers to one-ton pickup vehicles, making the facility very adaptable to the manner with which the goods are received and dispatched.

The goods will be mechanically or physically offloaded onto 1m by 1.2m pallets with a maximum weight of 1 metric ton and placed into the loading/offloading temperature-controlled chamber.

Fixed racking will be placed inside the storage chambers holding the 1ton, 1m by 1.2m pallets with a height of 1.6m. The product pallets will be stacked 6m high in the storage chambers. In total, the facility will have approximately 10,000 static racking pallet positions within the storage chambers. In addition to this, rails will be placed into the concrete floor to enable mobile racks to be fitted at a later stage as and when the additional storage space is required.

The facility will be managed by a computerised Warehouse Management System (to be decided upon before the commencement of the operations phase). Each racking position inside the facility will be numbered by room/chamber and pallet position. They will be allocated a barcode number, and this will be placed at the racking position. Consequently, each pallet entering the facility will be given a number barcoded sticker which will be attached to the product/good. Each pallet will be scanned into its racking position via a hand-held scanner. This will enable complete live tracking of each pallet into and out of the facility and further avoid the risk of mixing different products.

All the above aspects will be expanded to include detailed operations procedures and plans as part of the operational manual that will be developed prior to the commencement of the operations phase.

4.6.2 Operations Workforce

A workforce of approximately 110-140 people is expected during the operations phase, roles outlined in Table 4-7. CSRL will ensure that both direct and indirect employees apply GIIP labour and working conditions aligned to IFC PS 2.

Table 4-7 Operations Workforce Profile

Employee	Estimated No.	Description
Management and based team	7	Facility manager and office team (human resources (HR), accounts, admin).
Warehouse team	20	Commercial heads (subject matter experts), supervisors, maintenance, plant operators and warehouse general labourers.
Drivers	13	Drivers of trucks.
Outsourced workers*	26	Lumpers for unloading and loading of trucks.

* *typically, lumpers are employed by third party operators*

During the operational phases of the business, business development functions will be developed based on the five focus sectors in Rwanda:

- Commercial Head for agriculture.
- Commercial Head for meat, poultry and seafood.
- Commercial Head for food manufacturing.
- Commercial Head for pharmaceuticals and healthcare; and
- Commercial Head for supermarket/ Quick-service restaurant (QSR) chains.

Business development functions will conduct holistic research to attract and retain potential client bases.

In addition, there will be a Logistics and Warehouse Manager to foresee all the logistical activities.

4.6.3 Waste and Emissions from Operations

Table 4-8 outlines waste streams associated with the operations and maintenance of the Project. A waste sorting area is included in the facility design, and it is likely that the Project will use the existing licensed waste disposal firms that service KSEZ.

Table 4-8 Waste Streams during Operations

Waste Type	Description
General household type waste	From office and workforce.
Packaging	Typically, plastics and carton from pallets received.
Food waste	Food waste associated with food processing activities.
Oils and lubricants	From vehicle and facility maintenance activities – small quantities expected.
Emissions to Air	NO_x, CO_2, CO and particulates from truck movements and use of the backup generator. Local emissions are expected to be small due to the expected infrequent use of the generator and truck cooling/ freezing units will plug into the mains during docking to prevent truck engines having to be maintained on idle to run the truck mounted cooling/freezing units.

4.6.4 Power, Water and Wastewater

Table 4-9 outlines the demand for utilities during the operations phase.

Table 4-9 Utility Demand during Operations

Utility	Description
Power	Power demand for the facility will be approximately 2 MW serviced by a rooftop solar PV installation and grid supplied power by RDB. A backup diesel generator will be installed for use during power outages.
Water	Daily cooling water demand is 82 m^3. Water will also be required for staff, ablution facilities and food processing activities, in significantly smaller quantities than the cooling system demand.
Wastewater	Wastewater associated with cooling system (60% recycled, 30% discharged) and general facility demand. The wastewater discharge will meet the requirements of the discharge permit that will be obtained by CSRL.
Foul water	Foul water will be discharged directly to KSEZ's sewage system.

4.7 Supply Chain Management

4.7.0 Risks associated with supply chain

4.7.0.0 Risks

- **Supply of counterfeit goods:** This risk occurs when goods are deliberately and fraudulently produced and/or mislabelled with respect to identity and/or source to make them appear to be genuine. Counterfeit goods are a real threat to public health and safety and can penetrate the market through weak points along the supply chain.
- **Stolen products:** Illegal importation, storage and distribution of stolen or substandard goods can enter the markets if the supply chains are not appropriately controlled and managed. The methods by which such products enter the supply chain have become increasingly complex and have resulted in the development of thriving secondary and grey markets globally.
- **Unauthorised repackaging and relabelling:** Unauthorised repackaging and relabelling of goods presents a risk to the safety and security of the supply chain. Without proper mechanisms for the identification and authentication of repackaged and relabelled goods, the public health and safety is at risk.

4.7.0.1 Management Measures

CSRL will require all customers to have relevant certifications for their respective sectors where applicable and licensed/permitted by the relevant government authorities. The CSRL cold chain storage facility will be constructed to international standards. The facility will collaborate with several SMEs, local and regional traders and in some cases international traders. As such, customers will be expected to be complaint with the international market requirements such as those of the European Union Markets.

For every customer, CSRL will conduct a due diligence such as through completion of a "Know Your Customer" (KYC) form in which all the relevant certifications and licenses/permits will be checked.

All the goods received at the facility will be scanned to ascertain their contents and barcoded for the duration of the storage at the facility.

4.7.1 Management of risks associated with handling and storage of health products/ pharmaceuticals

4.7.1.0 Risks

- **Contamination and cross-contamination of heath products:** This can occur when chemicals, microbial, or physical substances are unintentionally transferred from one substance or object to medicines or other health products thus compromising their quality. The most typical sources of contamination and cross-contamination are poor storage design of buildings, clothing and footwear, equipment, insects, pests and rodents, entry of unauthorised persons, interior surfaces of walls, floors and ceilings (e.g. cracks and open joints) and poor ventilation.
- **Loss of potency during storage of health products:** Pharmaceutical and health products require controlled storage and transit conditions in order to ensure that their quality is not compromised. Storage is an important aspect of the total control system. Proper environmental control such as proper temperature, light, and humidity, conditions of sanitation, ventilation and segregation are important factors to consider during storage. Potency can be adversely affected if the product is left out for too long or exposed to multiple out of range temperatures that can have a cumulative negative effect.
- **Risk of storing obsolete and outdated products:** If products are not checked regularly for their expiry dates, there is a high chance that obsolete and outdated products will eventually find their way to the market. This can also be a source of contamination and cross contamination.
- **Damage of the products:** This can be caused by fire, electrical failures, power outages, aging equipment, or even natural disasters. Poor handling of the health products during off-loading/loading and storage can also cause damage.
- **Theft of drugs/vaccines:** The potential theft of valuable drugs/vaccines to sell on the black market. This could occur if products are not stored, inventoried or accounted for appropriately.

4.7.1.1 Management Measure

The operational flow described in Section 4.6.1 will significantly reduce the above risks.

In addition, the handling and storage of the pharmaceuticals will be headed by the Commercial Head for pharmaceuticals who will foresee all the associated activities.

The handling and storage of pharmaceuticals will be organised to meet the requirements of relevant international standards such as:

- The WHO Good Distribution Practices (GDP) for pharmaceutical products;
- Good Storage Practice (GSP) and GDP; and
- Good Warehousing Practice.

4.7.2 Risks associated with food handling and storage

4.7.2.0 Risks

- **Contamination and cross contamination of the food products:** The contamination and cross-contamination that can occur during food storage results from the transfer of harmful bacteria between foods by direct contact or indirect contact via the hands, clothing, cloths, equipment or other surfaces. Also foods containing specific allergens such as nuts, milk and eggs may mix with other foods due to damaged packaging or spillage or via hands, clothing, cloths or other surfaces.

- **Pests:** Pests are animals that live in or on food, such as rodents and insects. Pests in food storage facilities are a serious hazard and risk to health; they do not only contaminate food with foreign bodies such as faeces and hair, but they aid disease spread. Food products are at a high risk of contamination if adequate control measures are not in place. Pests are carriers of food poisoning microorganisms and viruses that pose major hazards to consumer health.
- **Equipment hygiene:** Equipment that comes into regular contact with food products during transportation and storage such as forklifts, trucks, pallets and other material handling equipment can be a source of contamination.

4.7.2.1 Management Measure

The operational flow described in Section 4.6.1 will significantly reduce the above risks.

In addition, there will be a number of Commercial Heads for the various food sectors (agriculture, meat, poultry, seafood and food manufacturing) who will foresee the associated food handling activities.

The handling and storage of food and food products will be organised to meet the requirements of relevant international standards such as:

- Foundation for Food Safety Systems Certification (FSSC 22000);
- Safe Quality Food (SQF) certification;
- Hazard Analysis Critical Control Point (HACCP) certification;
- British Retail Consortium Global Standards (BRCGS/BRC) for food safety, packaging and packaging materials, storage and distribution, and consumer products; and
- Quality Management Systems (ISO 9001).

4.8 Decommissioning Phase Overview

It is expected that the warehouse superstructure will have a lifespan in excess of 50 years and demand for cold storage will only grow during this period in Rwanda. As such, two options are considered for decommissioning:

- Components that have a shorter lifespan such as the cooling system and vehicles will be replaced and the facility will continue to function. It is likely that the cooling system, at least in part, will need to be replaced after 20 years and this provision is made in the design of the facility.
- On the basis that the facility is no longer required it will be dismantled and the site returned to its original state.

Should the second option materialise, then the decommissioning phase will be similar to the construction phase in terms of E&S impacts. The majority of the warehouse superstructure is made of steel and recyclable components. The concrete foundations and other non-recyclable elements will be disposed of to landfill or in other most appropriate manner depending on advancements in technology at the time of decommissioning. Given that the lifespan is over 50 years, provisions will be made in the ESMMP for a decommissioning plan to be developed at least one year prior to decommissioning.

5. ANALYSIS OF PROJECT ALTERNATIVES

5.0 Project Location Alternatives

CSRL, on the basis of market studies and proximity to the largest customer base in Rwanda, selected to locate the facility in the Kigali environs. From an initial screening by the development team, six plots were analysed:

Table 5-1 Project Site Description

Site Description	The plot has an average slope of 16% from East to West and an average of 0.6% from North to South. The plot would require major excavation along with retainer walls. Land size of c.15,167 sqm (c.3.7 acres)
Site Access	Masoro-Munini, just a few kilometers from the Kigali International Airport along the Central Transport Corridor is strategically located nearthe center of Kigali, truck access into and out of the park are of a good standard, the infrastructure is of a good standard and traffic seem to be free flowing without any congestion.
Land acquisition	Land owned by the Rwanda Printing and Publishing Company Ltd (RPPC)
Environmental settingand sensitivities	RDB has carried out EIAs on Phase 1 and 2 and require an independent EIA to be carried out by the buyer of any plot of land in the Park.
Associated facilities	It is envisaged that the facility will undertake some light food packaging. It will be confirmed during the concept design phase and subject to assessment as part of the wider facility E&S assessment undertaken by a registered environmental consultant. Utilities (power, water, sewage) are provided by the municipality.
Land ownership andcurrent land uses	The plot option is owned by the RPPC with a UPI of 1/02/11/04/2099[7]. The land has full title, and it is a 30-year lease.

5.1 Project Layout Alternatives

The layout of the facility is constrained by the land available at the outlined Project Site, the cost of land and the size of the warehouse. The prioritised plot is sufficient to accommodate all Project components. There are two primary layouts for storage warehouses and associated logistics which are driven by the docking arrangement:

- Standard docking – bays on one side of the warehouse to receive and delivery goods to customers; and
- Cross-docking – bays on both sides of the warehouse to allow for efficient sorting and distribution.

Each option provides benefits and limitations from an operational perspective – standard docking allows for a larger facility size whilst the cross-docking allows for faster handling times and through-out of goods, considered essential for temperature-controlled items. The latter also allows for a smaller facility size without compromising (in significant terms) the volume of goods the facility can

[7] Link to the Master Plan: Kigali City Master Plan 2020

handle. The benefits of cross-docking are most easily communicated in

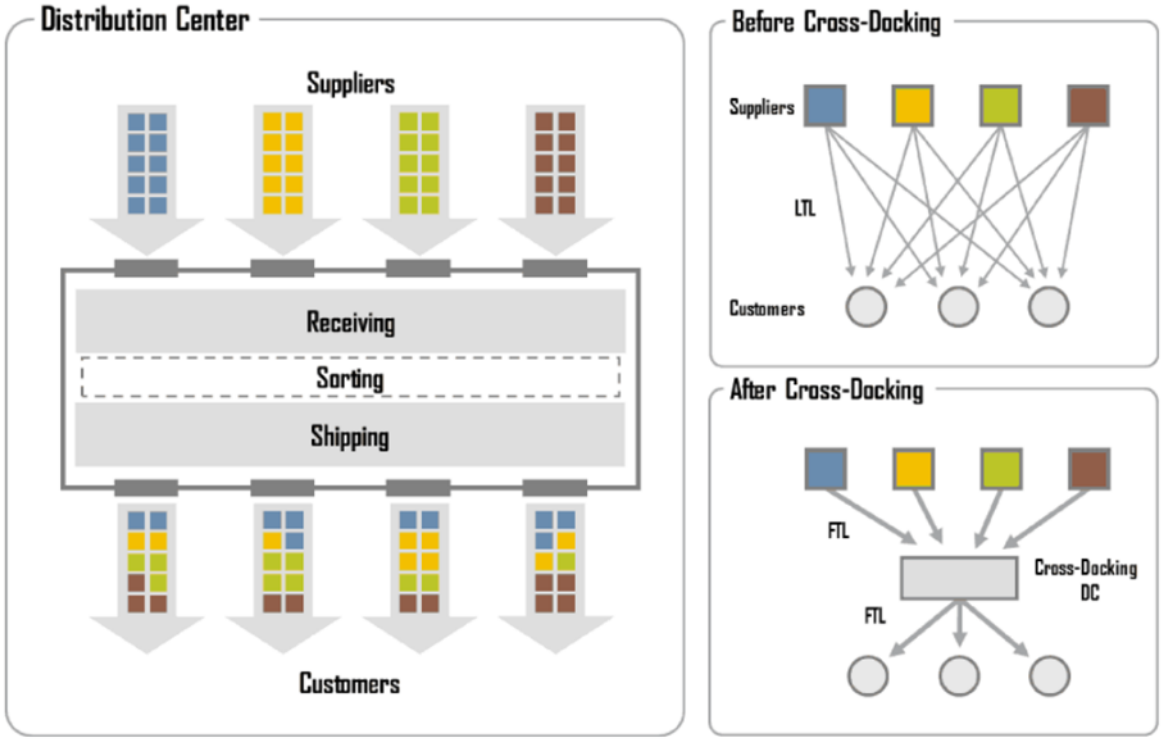


Figure 5-1 and this is the preferred facility design.

There are no sensitive environmental or social resources present at the Project Site that would constrain the Project layout.

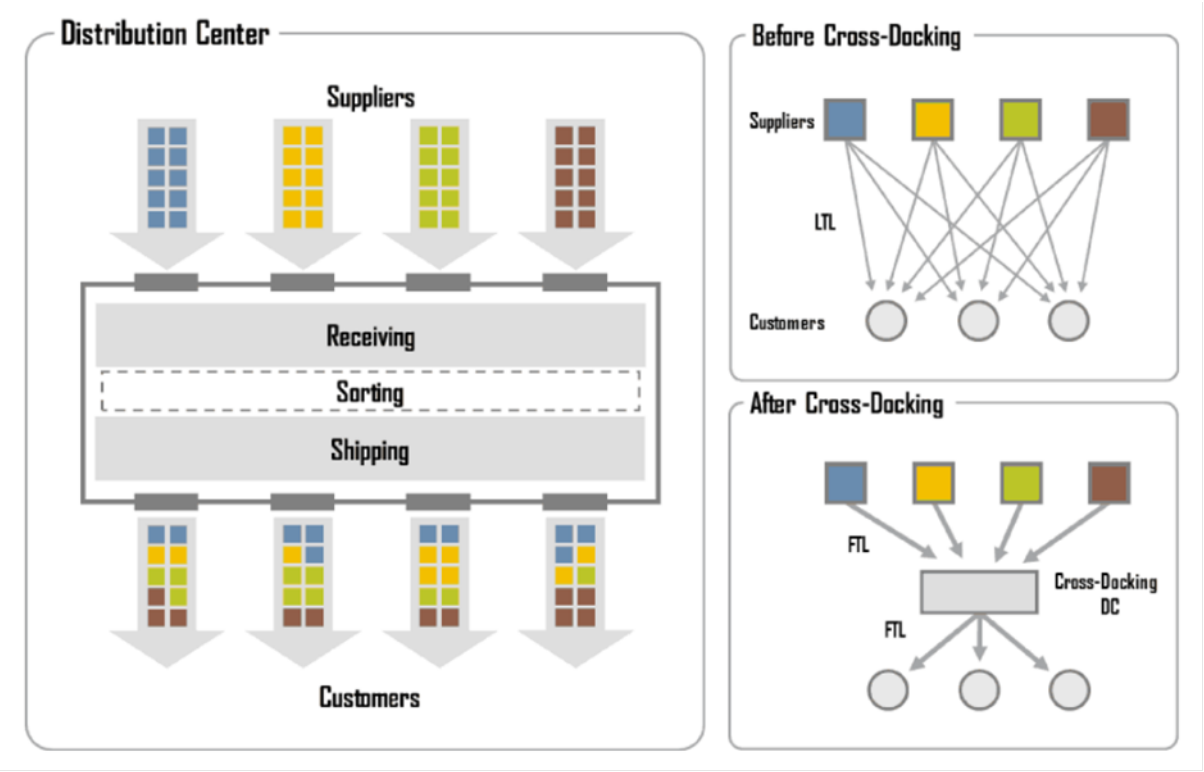


Figure 5-1 Benefits of Cross-docking

5.2 Technological Alternatives

5.2.0 Refrigeration Technologies

The choice of refrigeration technology is arguably the most important component of the Project since it has a large energy demand and needs to be reliable. In turn, it is a significant Project cost and, depending on the choice of refrigerant, a contributor of GHG emissions. There are three main categories of refrigerants available on the market:

- Saturated chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs and HFCs);
- Unsaturated hydrofluorocarbons (U-HFCs); and
- Natural gases such as ammonia, carbon dioxide, propane and glycol.

Although now phased out under the Montreal Protocol (1987) and its subsequent Kigali Amendment (2016), saturated CFCs and HCFCs are still widely available. These refrigerants have both high ODP and GWP. Rwanda, as signatory to these agreements, has made them illegal and therefore these refrigerants are not considered an option.

U-HFCs have emerged as a replacement of CFCs and HFCs in order to meet the requirements of these multilateral agreements and have low GWP and zero ODP. However, whilst these refrigerants solve this problem, they produce persistent wastes. Through the decomposition of U-HFCs they produce trifluoroacetic acid (TFA), a strong acid with toxicity to some organisms. There is also no known degradation mechanism for them (GIZ, 2015). As such, these refrigerants will also not be considered for the Project.

The choice of refrigerant technology will therefore be based on a natural gas. These gases share similar GWP profiles (0-20 over 100-year life) and zero ODP. The principal differences between them are around:

- Energy efficiency - carbon dioxide has lower efficiency in warmer climates;

- Human safety - ammonia, propane and glycol are both toxic and hazardous if leaks occur; and
- Cost – ammonia, as a direct supply cost, is more expensive; however, compared to other gases these costs may be offset in energy efficiency.

All of these gases are considered acceptable from an E&S perspective with the appropriate mitigation measures implemented. Whilst carbon dioxide presents the least risks when considering health and safety, it is a relatively new technology that has not been deployed at scale in sub-Saharan Africa (with the exception of South Africa). Therefore, parts availability and ongoing maintenance needs to be considered carefully as part of this decision.

In consideration of the above, the choice of refrigerant technology will be:

- A system based on one of the natural gases discussed above;
- A cascade system using a combination of ammonia and carbon dioxide.

The final decision will be made as part of the detailed design and procurement phase for the Project.

5.3 Power Supply Technology Alternatives

The power demand for the facility will be 2-3 MW and as previously stated needs to be reliable. As such, the following three power supply options have been assessed for the Project:

- Grid supply with a backup generator;
- Roof-top solar, grid supply and backup generator; and
- Roof-top solar with battery storage, grid supply and backup generator.

In order to meet the requirements of the LEED green building certification, the Project is required to include renewable energy supply. This decision, given the energy tariffs in Rwanda, also makes sense commercially – i.e. it will reduce the operating costs of the facility. The use of roof-top solar will reduce the GHG emissions associated with the facility's power demand, the level of which is determined by the sizing of the solar installation which is largely dependent on available roof space. However, in all cases solar technology directly supplied by the facility will not be sufficient to power the entire Project and so grid supply will always be required.

The decision to adopt battery storage is driven by technical considerations of system integration and space availability but also the waste streams associated with batteries and lack of current recycling options available in Rwanda. In addition, the decision to include storage may be taken at a later date to capture the significant advances that battery technology is undergoing including more sustainable options.

Whilst the grid has been generally stable in the region, there will always be a need for backup power sized to total facility power demand. The backup generator technology is still to be decided but will include the following fuel options: diesel, liquefied natural gas (LNG) and hydrogen fuel cell. The latter two options are preferable from an emissions perspective but may not be viable in Rwanda due to lack of availability, running costs and ongoing maintenance requirements. Given the criticality of this component, reliability is a primary consideration.

5.4 No-Go Alternative

A No-Go/ no Project alternative will mean that any potential Project specific impacts are not manifested but the Project benefits of providing the needed cold storage facilities will not be realised. Whilst the Project is not of sufficient size to address all the market issues associated with a lack of temperature-controlled storage solutions in Rwanda, the benefits that this sector generates are well documented and until there are market entrants into the country, these issues will continue to be faced, including:

- Significant seasonal fluctuations of fruit and vegetable prices;
- Food losses and associated impacts including food insecurity and GHG emissions;
- Reduced food hygiene and public health;
- Inadequate TCSFs for pharmaceutical products including vaccines that require to be stored at very low temperatures; and
- Reduced economic development opportunities including product export and businesses moving up the value chain.

The main barrier to entry for cold chain solutions businesses is the very high initial capital costs, the large consumption of electricity and the need for a reliable and continuous supply (although the Project's facilities will leverage renewable power (solar) which address this problem), which many investors will not take the risk on without the confidence that a proven market exists. As such, until a facility is operational and proven, Rwanda is unlikely to see an influx of other facilities required to address these market deficiencies in the near to medium term future. Where CSRL differs from other cold chains businesses is through their funding from DFI investors with a mandate to achieve development goals. This secured funding for the Project and patient capital from these investors provides the platform for the Project as a new market entrant to be successful.

Another challenge to operation of the business is the large consumption of electricity as well as its reliability, which will be addressed via the construction of solar PV within the facility.

In addition to the market shifting platform the Project provides, there will also be a relatively significant number of direct permanent jobs (100-150) and indirect jobs created as businesses move up the value chain. Secure employment will in turn provide benefits at the household level including financial security. In the no Project scenario these benefits would not be realised for the Project affected communities and potentially further afield should no cold chains businesses materialise in the short to medium term.

Given the above analysis, the No-Go/ no Project is not a favourable alternative and not considered further in this assessment.

6. BIOPHYSICAL BASELINE

6.0 Introduction

This Chapter of the Report provides a description of the existing physical and biological conditions of the Project Area, which will directly or indirectly be affected by the Project activities. It is essential that the baseline conditions of an environment are characterised in order to accurately predict the potential effects the Project will have on the environment. The collection of baseline data therefore focused on providing information to support the assessment of any potential impact of the Project. To put the Project into context, information was collected at the following levels:

- *District Level*: Secondary information was collected at the District-level aimed at providing a contextual overview of the host District.
- *Project Area*: Secondary and primary information was collected within the Project Area specifically within and in the immediate vicinity of the Project Site/Plot (biophysical Area of Influence), given its location is in the KSEZ.

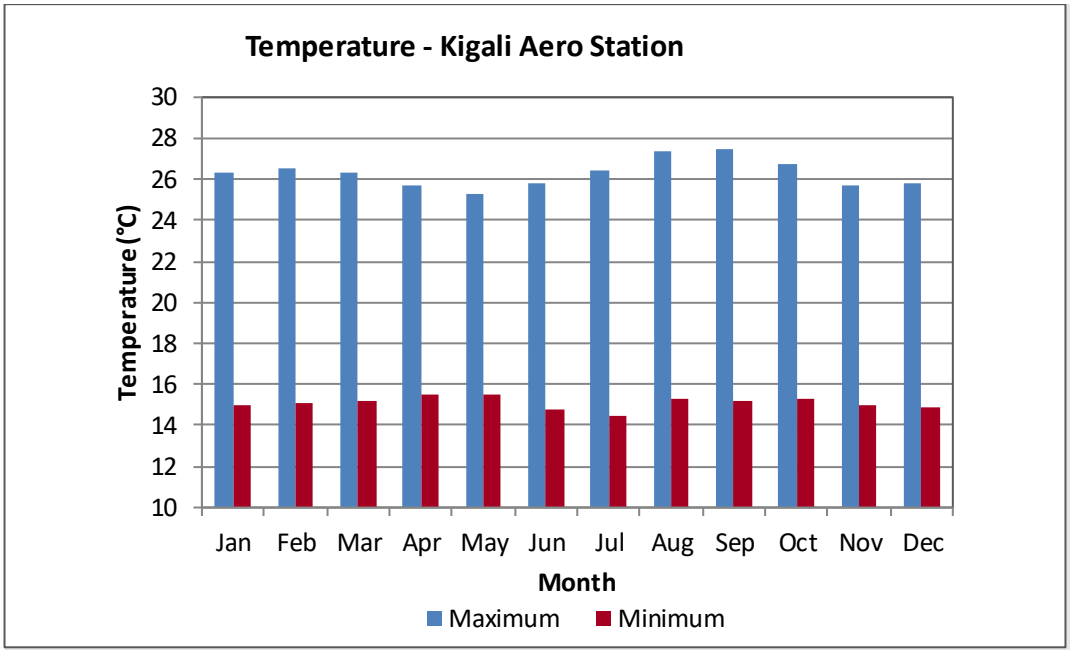
6.1 General Overview

The Project Site is located in the KSEZ, Phase 1, located in Munini village, Masoro cell, Ndera sector, Gasabo district on the outskirts of the CoK, just 4 km from the Kigali international airport and 12 kilometres from the city centre along the Kigali-Kayonza national road. The KSEZ occupies a total area of 159 hectares (ha), of which over 131 ha are for industrial use and 28ha are for the green belt. KSEZ land acquisition dates from 2006 and PEZ started infrastructure development of KSEZ phase 1 in 2008, where 6.5 km of asphalt concrete roads, industrial designed water and electricity networks, centralized sewage treatment plant, fibre optic network and a firefighting system were developed. As an SEZ, Phase 1 is occupied by different sectors of developments comprising; construction firms, manufacturing industries, agro-processing, food processing and beverages, textiles, clothing and leather, wholesales pharmacy services, import and distribution, and printing among others.

Given the above developments, the land use of the Project Area is industrial (refer to Sections 7.4 for a detailed description of the Land Use of the Project Area).

6.2 Climate

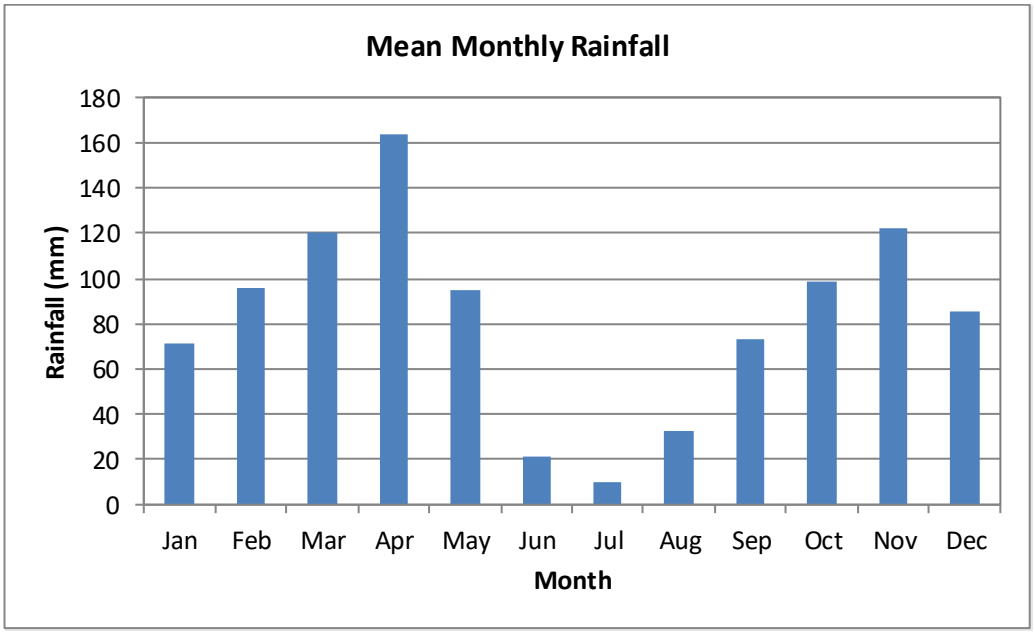
Data from the Kigali Aero station shows that the mean minimum temperature of Gasabo District is 15°C and a mean maximum reaches 26°C as shown in Figure 6-1 below, with the highest temperature in the months of July-August.



(Source: Kigali Aero station, 2012)

Figure 6-1 Seasonal temperature variation in Gasabo District

The annual rainfall in most parts of Gasabo, the District in which the Project Site is located, is in in the range of 1,200-1,400mm/year. The seasonal pattern of the rainfall regime in Gasabo is such that there are two (2) rainy seasons extending from February to May and late September to November with generally high spatial and temporal rainfall variability (Figure 6-2). The seasonal variation indicate the relatively dry period between June and August with monthly rainfall amounts predominantly below 40 mm. July is the driest month in the catchment while the wettest month is April with the average rainfall amounts recorded as high as 163 mm.



(Kigali Aero Station, 2012)

Figure 6-2 Seasonal rainfall pattern in Gasabo

6.3 Hydrology

6.3.0 District Level

Gasabo district is characterized by over 30 wetlands and small rivers traversing through the valleys. The longest river of all is Nyabarongo River, about 50km long and 1,000m wide that originates from Lake Muhazi in the Northeast of Gasabo district. Lake Muhazi empties into the Nyabugogo River thereafter connecting to the Nyabarongo River, which eventually empties in the Nile River Basin.

Similarly, other water sources of importance are; Sumo River in Rugende which ends in Akagera River, Buliza River that traverses through Karuruma, Umulindi and Rusine centres before emptying into Nyabugogo River. These marshlands or wetlands provide potentialities to the district if well reclaimed can enhance or increase agriculture productivity, improve tourism, improve environmental ecological system as well. (Gasabo DDS 2018-2024).

According to the 2019 Technical Support for Development of Wetland Master Plan for Kigali City (SMEC, 2091), Gasabo District comprises of the following wetlands; Nyabugogo, Kaziramuboro, Misare, Nyabuhoro, Kajevuba, Mugasagara, Kibobo, Nyagasozi-Kigozi, Gikono, Nyancyonga-Mulindi, Byabagabo, Nyabugogo-Kabuye, Rufigiza-Akagogo, Kamusenyi, Rufigiza-Nyagisenyi, Mulindi Kanombe, Kamusenyi, Rwezagoro, Rwampara, Rugenge-Gikondo, Rugende- Isumo, Rwamugeni, Mwanana-Mulindi-Kanombe (Nyandungu) and Kiraduha.

Of these wetlands, the most relevant to the KSEZ, Project Area, is Mwanana-Mulindi-Kanombe (Nyandungu). KSEZ discharges treated wastewater effluent and stormwater run-off separately to this wetland. The Project as part of the KSEZ will contribute towards discharge of stormwater run-off through drainage channels and to wastewater effluent for treatment before it is discharged by KSEZ to the wetland downstream.

Mwanana-Mulindi-Kanombe wetland has an area of 244 ha. REMA has completed restoring the upstream of this wetland, before the KSEZ, as part of the 134 ha Nyandungu Urban Wetland Eco-Tourism Park project (Duhuze, 2019). The aim of the Project is to create an urban wetland recreation and eco-tourism park. Importantly, compliance of the SEZ industries in wastewater treatment is key to the success of this Project.

6.3.1 Project Area

There is no river or stream at the Project Site. However, drainage channels exist towards the south and east of the KSEZ (Figure 6-3) Concrete drainage channels exist on the Project Site, in which stormwater runoff from the Project will be diverted to.

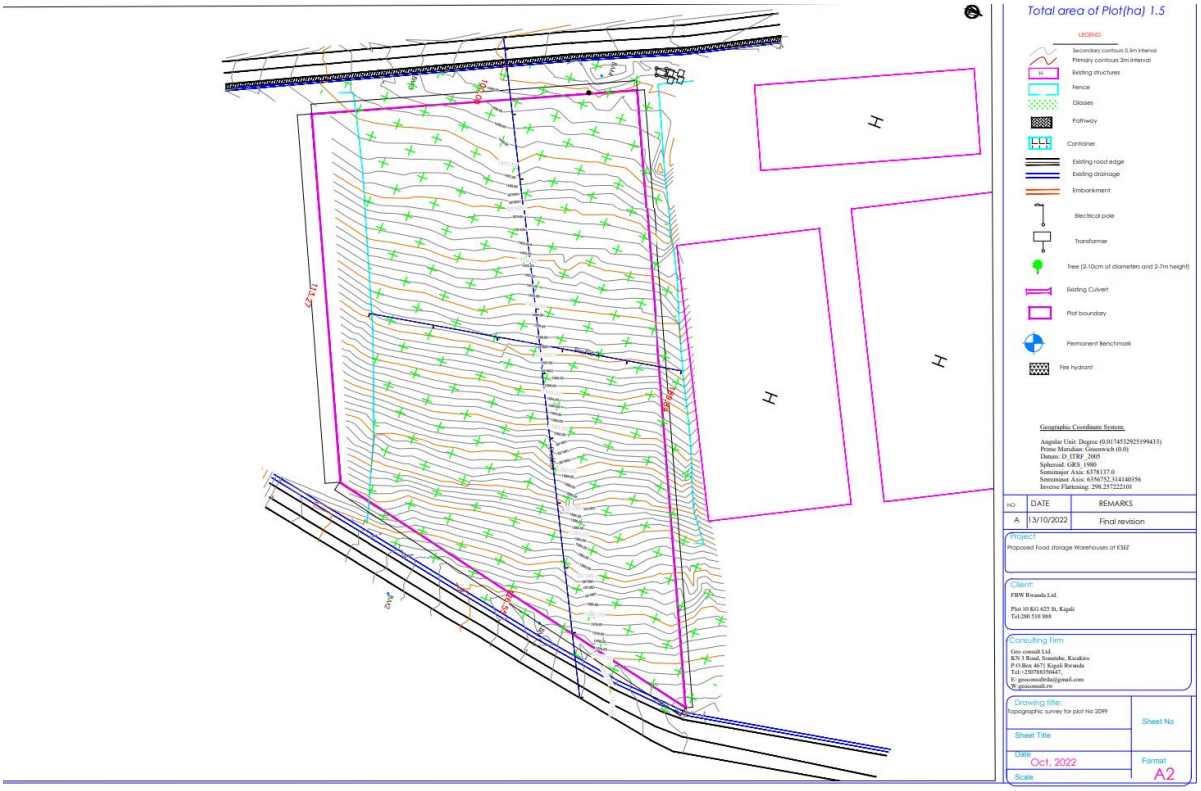


Figure 6-3 Hydrology and topography of the Project Area

6.4 Geomorphology and Topography

6.4.0 District Level

According to the Gasabo District Development Strategy (DDS-2018-2024), Gasabo district is characterized by the mixture of high mountains with average altitude of 1,800m mainly located in the rural zone, sloping basins and valleys. The district has over 30 wetlands and small rivers traversing through the valleys.

6.4.1 Project Area

The KSEZ is located on the hillsides of Nyandungu valley, with a mean altitude equivalent to 1,500 m.a.s.l. The two Project plots are located on a gentle slope, with elevation ranging from 1440 to 1450 m.a.s.l. The land profile / contours are as shown in Figure 6-3.

6.5 Geology and Soils

6.5.0 District Level

According to the Geotechnical study report for 200 selected villages in Kigali published in May 2020, prepared by University of Rwanda, College of science and Technology (UR-CST) for the CoK, the dominant soil type in Gasabo District is lean clay with sand which covers about 32% of all selected villages in Gasabo district. This type of soil is known for its high liquid limit (LL) and plasticity. However, the increase of sand content decreases the plasticity of sand-clay mixtures and sand-clay mixture loses its plasticity when the sand content is more than 30 to 50%. The results show a range of LL of 24 to 61 percent for soils from Gasabo district, while plastic limit (PL) and plasticity index (PI) ranges from 13% to 33%, and 4% to 25% respectively.

According to this study, the Gasabo lean clay with sand soil comprising of such characteristics mentioned above, is recommended for three types of foundations; wide strip footing foundations, raft foundation and pile foundation for firmer strata. This should be considered during the designs of the building foundations.

6.5.1 Project Area

The soils of the Project Area is generally similar to that of the wider district described above; however, the Project Proponent will confirm the specific properties of geology and soils of the Project Site through the conduct of geotechnical surveys, prior to the commencement of the construction phase.

6.6 Biodiversity

6.6.0 General Overview

Given that the Project Area's previous land use was dominated by subsistence farming and scattered village settlements (before it was acquired by GoR in 2006) and considering that it has been an SEZ with infrastructure dating back to 2008, the habitats in the Project Area are highly modified by human activities particularly, industrialisation. It therefore does not contain any important biodiversity habitats and not of any conservation value or concern.

6.6.1 Project Area

The plot Site is dominated by secondary vegetation comprised of grasses; shrub crops arranged in small to medium-scale fields with scrubby trees (as seen in Figure 6-4). At the time of the site visit, no fauna was observed at the Project Site.

Grasses at the Project Site | *Vegetation* at the Project Site

Figure 6-4 Vegetation at the Project Site

6.7 Summary of Biophysical Sensitivities

- Gasabo District in which the Project Site is located receives bi-modal rainfall; two (2) rainy seasons extending from February to May and late September to November with generally high spatial and temporal rainfall variability, which has implications for stormwater management. The dry period between June and August could be of importance for planning the construction period of the Project.
- The most relevant wetland to the KSEZ, Project Area, is Mwanana-Mulindi-Kanombe (Nyandungu). KSEZ discharges treated wastewater effluent and stormwater run-off separately to this wetland. The Project as part of the KSEZ will contribute towards discharge of stormwater run-off through drainage channels and to wastewater effluent for treatment before it is discharged by KSEZ to the wetland downstream.

- There is no river or stream at the Project Site. However, drainage channels exist towards the south and east of the KSEZ. Concrete drainage channels exist on the Project Site, in which stormwater runoff from the Project will be diverted to.
- The KSEZ is located on the hillsides of Nyandungu valley, with a mean altitude equivalent to 1,500 m.a.s.l. The two Project plots are located on a gentle slope, with elevation ranging from 1440 to 1450 m.a.s.l.
- The dominant soil type in Gasabo District is lean clay with sand. This type of soil is known for its high LL and plasticity. However, the increase of sand content decreases the plasticity of sand-clay mixtures and sand-clay mixture loses its plasticity when the sand content is more than 30 to 50%. The results show a range of LL of 24 to 61 percent for soils from Gasabo district, while plastic limit (PL) and PI ranges from 13% to 33%, and 4% to 25% respectively. The Gasabo lean clay with sand soil comprising of such characteristics is recommended for three types of foundations; wide strip footing foundations, raft foundation and pile foundation for firmer strata.
- The Project Site and its immediate surroundings has highly modified habitats, which are not of any conservation value or concern. This is largely attributed to historical land use (that was dominated by subsistence farming and settlements) and the fact that the SEZ is already largely developed.

7. SOCIO-ECONOMIC BASELINE

7.0 Introduction

The purpose of this Chapter is to describe the socio-economic environment within which the Project is located. The baseline provides a contextual component for identifying and assessing any potential socio-economic impacts of the Project.

With the Project Area within the KSEZ, Phase 1 which is purely an industrial area devoid of settlements, most of the data for the socio-economic baseline was obtained from the Integrated Household living conditions surveys (EICV 3 and 4) of Gasabo District and its sector, Rwanda fourth Population and housing census, and the Rwanda Demographic and health survey 2014-2015.

7.1 Project Location

Gasabo District is one of the three districts that make up the CoK, with 15 sectors, 73 cells and 481 villages (also locally known as *imidugudu*). It is bordered by the districts of Kicukiro (South), Nyarugenge (West), Rwamagana (East) and Rulindo and Gicumbi (North). The district's surface area is 429.2 km^2 of which a big portion is rural while the small portion represents the developed urban area. It has 15 sectors which are Bumbogo, Gatsata, Gikomero, Gisozi, Jabana, Kacyiru, Kimihurura, Kimironko, Kinyinya, Ndera, Nduba, Remera, Rutunda and Rusororo (Gasabo DDS 2018-2024).

Specifically, the Project Site is in the KSEZ, Phase 1 in Munini village, Masoro cell, Ndera sector, Gasabo District, CoK (also refer to Table 1-1 and Figure 1-1 in Chapter 1 of this report)

7.2 Profile

7.2.0 District Level

According to the fourth population and housing census (2012), Gasabo district has a population of 529,561 comprising of male 51.7% and female 48.3%. This represents 48.6% of the total population of the CoK (46.8% of 1,132,686 population) and 5% of the total national population (5% of 10,515,973). This population is distributed into urban and rural represented by 69% and 31% respectively. The average age of population is 25.5 years.

7.2.1 Project Area

The Project Site is located within the KSEZ, surrounded by other industrial plots most of which are already developed (Section 7.2). The nearest settlements are in Kanombe on a hillside across the SEZ and further North is Bumbogo closer to the phase 2 of KSEZ. These settlements are considerably far from the Project Site and will thus not be directly impacted by site activities apart from Project workers.

Observations during the field visits and from previous projects done by the consultant at the KSEZ showed that there is local availability of both semi-skilled and unskilled labour who can be employed at the Project Site as necessary.

7.3 Land Use and Land Tenure

7.3.0 District Level

Gasabo District covers an area of 430.30 km^2. According to a study conducted by Jane & Mbabazi Mbabazize in 2015 on the land use situation of Gasabo District, almost all respondents (99.7 %) affirmed that they exploit/use their land. The agriculture (farming) is the most common kind of exploitation (73.5%), and in 99.7% of land has not been fragmented. Furthermore, 100% of those who are farmers are carrying out traditional agriculture, the maximum estimated revenue from their land per season was 200,000 RWF, the minimum estimate was 8,000 RWF, and the mode estimate was 20,000 RWF. Finally, all respondents (100%) who hold land do not require any permission for land

exploitation of their land. In regard to land tenure, 66% of households in Gasabo district own land. Among those who own land, 27.3% acquired land from inheritance whereas 72.7% acquired their land through buying. Of those who possess land, 55.4% affirmed that they have a half of a hectare while 13.7% have 1 ha, and 26.7% owned parcels in the range of 600m^2.

7.3.1 Project Area

The Project Site is located within the KSEZ. The KSEZ is developed in three phases (Figure 7-1). Phase I in which the Project site is located covers 98 ha of land. It is serviced with roads, electricity, water and firefighting systems, sewage and fibre optic cables that will serve in easing the operations of investors. This phase hosts 97 plots divided as follows:

- One plot sheltering a control room where all the electricity of the zone converges and is controlled.
- One plot sheltering water tanks supplying potable water to individual plots.
- One plot sheltering a sewage treatment plant that will treat all the sewage water from industries.
- 94 plots for industries/warehouses.

Phase II has 178 ha of land. It is serviced with roads, electricity, water and firefighting systems and sewage network. The number of plots in this phase is 67 plots divided as follows:

- One plot sheltering a control room where all the electricity of the zone converges and is controlled.
- One plot sheltering water tanks supplying potable water to individual plots.
- One plot sheltering a sewage treatment plant that will treat all the sewage water from industries.
- 64 plots that will accommodate industries/warehouses including one plot that will serve as an ICT Park.

Phase III is still in early stages of planning and development.

Overall, the KSEZ consists of the following key types of industries; construction, manufacturing, agro-processing (food processing & beverages), textiles (clothing & leather), wholesale pharmacy services, import and distribution, printing, transport services and a university.

Land use within the immediate vicinity of the Project Site in Phase I of the KSEZ is industrial and largely already developed as shown in Figure 4.2 in Chapter 4 of this report.

Figure 7-2 shows some photographic evidence of the industrial developments in the immediate vicinity of the Project Site.

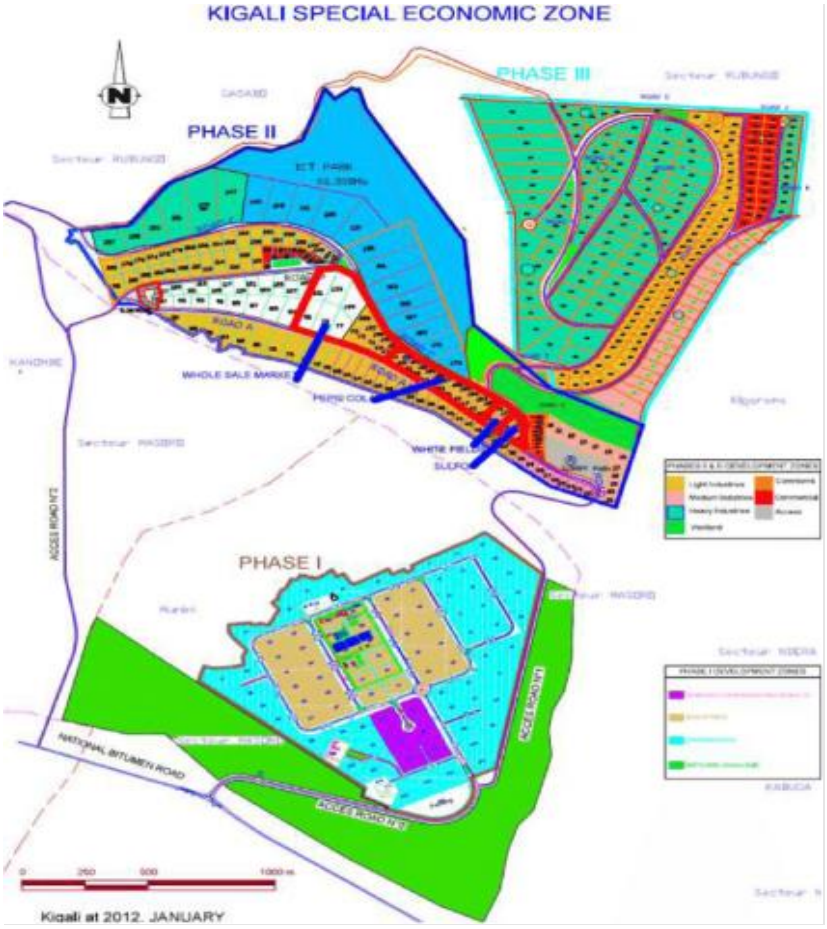


Figure 7-1 Extent of KSEZ, Phase I, II and III

Figure 7-2 Industrial Developments In the immediate vicinity of the Project Site

7.4 Economic Activities

7.4.0 District Level

Labour and Employment

According to the Gasabo DDS (2018-2024), the poverty rate in Gasabo District is 23.4% (EICV4), and the extreme-poverty is 11.3% as per the EICV 4. 70.1% of the Residents aged 16 years and above are in the labour market, and the labour force participation rate for male is 78.2% and female is 61.3%. The employment rate in Gasabo district for male is 60.1%, while the one for female is 39.9% as per the RHPC4. Inactive population (not engaged in reasonable economic activity) is 38% for male and 62.1% for female.

The employed youth in Rwanda (between 14-35 years) is 60.7% for male and 39.3% for female, unemployed youth are 34.6% male and 65.4% female while those inactive are 41.9% male, 58.1% female.

Agriculture

Agriculture in terms of crop production and livestock is the second main economic activity in Gasabo District. According to EICV4, 32.8% of the populations in Gasabo are employed in the agriculture sector including the wage farm (6.9%) and independent farmers (26.1%). This rate has been reduced from 40% reported by EICV3. Table 7-1 shows more details on agriculture and gender issues.

Table 7-1 Distribution of Gasabo Population involved in Agriculture sectors

Economic Activity	Total Workers		Gender		Percentage	
	Count	Percent	Male	Female	Male	Female
Total	493,302	100	314,154	179,148	63.7	36.3
Agriculture, forestry and fishing	27,830	5.6	15,070	12,760	54.2	45.8

Source: RPHC4, 2012.

Crop production

According to Gasabo DDS (2018-2024), the available agricultural land in Gasabo is 28,752.7 ha comprising of cultivated land (59.4%), fallow (15.4%) and pasture (0.5%) while the non-agricultural land represent 24.7%. The main crops produced are legumes and pulse representing 27% of cultivated land followed by cereals 23.8% (especially sorghum and maize) and banana at 17%. Table 7-2 shows the cultivated areas of Gasabo by crop type, productivity and production.

Table 7-2 Cultivated area by crop type, productivity and production

Crop/Crop category	Area (Ha)	%	Productivity (Kg/Ha)	Production (MT)
Cereals	5,154	23.80%		
Maize	1,476	6.80%	762	284
Sorghum	3,653	16.90%	1,183	640
Paddy rice	25	0.10%	-	
Tubers and Roots	3,704	17.10%		
Cassava	1,947	9.00%	2,637	1,217
Sweet potato	1,034	4.80%	4,780	470
Irish potatoes	357	1.60%	5,255	25
Yarms & Taro	367	1.70%	3,376	389
Bananas	3,822	17,60%		
Cooking banana	1,509	17.00%	3,350	3,469

Crop/Crop category	Area (Ha)	%	Productivity (Kg/Ha)	Production (MT)
Dessert banana	1,230	5,70%	3,900	1,227
Banana for beer	1,083	5.00%	3,210	1,126
Legumes and Pulses	5,855	27.00%		
Bush bean	4,773	22.00%	739	1,112
Climbing bean	103	0.50%	2,131	44
Pea	202	0.90%.	597	1
Groundnut	313	1.40%	644	22
Soybean	464	2.10%	589	40
Vegetables and Fruits	807	3.70%		
Vegetables	514	2.40%	8,540	2,208
Fruits	292	1.30%	1,633	209
Other crops	2,333	10.80%		
Developed land	21,675	100.00		
Agricultural physical land	16,756	77.30%		
Fallow land	4,344	20.00%•		

Source: NISR, 2017 Seasonal Agricultural Survey - Season B

7.4.1 Project Area

Given that the Project Site is within the KSEZ, the economic activities are purely industrial comprising of construction firms, manufacturing industries, agro-processing, food processing and beverages, textiles, clothing and leather, wholesales pharmacy services, import and distribution, printing, all of which were established upon preparation of respective ESIAs and acquisition of respective EIA licences.

7.5 Water and Sanitation

7.5.0 District Level

7.5.0.0 Water Resources

The EICV4 reported that 85.6% of Gasabo district households collects water from an improved drinking water source, which takes an average in meantime of 9.5 minutes to reach. This is much lower than the national average, where 84.8% spent an average of 11.2 minutes. This indicates an improvement in water situation accessibility in the district. Additionally, there has been an slight improvement at national level since 2012; more particularly there has been in an increase in the number of households accessing water and decrease in the time spent.

7.5.0.1 Sanitation

In terms of sanitation, the EICV4 reported that Gasabo district has 94% of households (HH) with improved toilets while 1.3% do not have any toilets whatsoever. Only 48.2 % of the HHs use improved toilets and not shared with other HHs. Apart from the household sanitation facilities, the public sanitation facilities remain insignificant, for example, there are only 900 public toilets in the urban areas and 413 rooms in peri-urban areas.

The district in collaboration with the CoK has put in place one landfill in Nduba Sector to serve the whole of CoK. Currently, 11 waste collection companies were created and are operational the CoK among which three (3) waste collection companies have been contracted to offer cleaning service (Roads and public spaces) by the district; additionally, each sector contracts at least 1 waste collection company for the households. Additionally, 14 hygiene and security patrol cars have been

bought to facilitate monitoring of hygienic issues across the sectors, greening and pavement at schools and at health facilities, 4 new public toilets have been constructed in Kacyiru, Rusororo and Jabana Sectors.

7.5.1 Project Area

The facilities within the Project Area are currently connected to the Kigali Municipal water supply system. The current water demand is well met by the water storage tanks within the KSEZ. Liquid waste for the facilities within the Project Area is discharged directly to the KSEZ Sewer System and treated by a decentralised Wastewater treatment system meant for all influent from industries from the KSEZ. Observations made at the time of the site visit conducted in November 2022 showed that there are proper concrete drainage channels along the constructed access roads as well as manholes (expected to be connected or planned for connection to the sewer line (Figure 7-3).

Concrete slabs over drainage channels along access roads; designed to allow for stormwater run-off

Figure 7-3 Water Management Infrastructure within the KSEZ

7.6 Education and Literacy

7.6.0 District Level

According to the Gasabo DDS (2018-2024), the education sector in Gasabo District is dominated by the private sector where about 80% of schools both pre-primary, primary, secondary and tertiary schools are owned by private investors and the civil society.

According to RPHC (2012), the number of primary schools in Gasabo District is 106, with 1,316 classrooms and attended by 95,336 pupils of which 49.81% are female and 50.19% are male. The total number of teachers in these primary schools is 1,816, of whom 92% are qualified staff and 90% have been trained in teaching methods. The general pupil: teacher ratio is 52 and pupil classroom ratio is 72 with a dropout rate of 7.2% (for male) and 7.6% (for Female).

For secondary education, Gasabo District has 111 secondary schools with 666 classrooms and attended by 20,672 students of which 51.85% are female and 48.15% are male. there 886 secondary school teachers in these schools of which 95% are qualified staff and 85% have been trained in teaching methods.

In addition, Gasabo district has a total of 20 Technical and Vocational Education and Training (TVET) schools, Vocational Training Centres (VTCs) and Technical Tertiary Institutions (awarding Diploma and Advanced Diploma). TVET provides both young and unemployed people with the skills to gain productive employment. It also provides individuals already in employment with opportunities to upgrade their skills, including entrepreneurs and other self-employment skills.

Higher institutions of learning in Gasabo district include Kigali Independent University, Adventist University of Central Africa (AUCA) and University of Rwanda (UR) - Remera Campus, Carnegie Mellon-Rwanda Campus, African Leadership University (ALU) - Rwanda Campus.

The NISR (National Institute of Statistics Rwanda) EICV4, 2014, showed that Gasabo has an 88.5% literacy rate of people above 15 years and a 23.5 % computer literacy rate.

7.6.1 Project Area

There is no institution of learning within Phase I of the KSEZ (where the Project Site is located); however, in Phase II about 2-3km from the Project Site, there are two university campuses, that is, Carnegie Mellon - Rwanda Campus, and ALU -Rwanda Campus (Figure 7-4).

Carnegie Mellon University Africa within KSEZ Phase II

ALU within KSEZ Phase II

Figure 7-4 Universities in the KSEZ Phase II

7.7 Health

7.7.0 District Level

According to the Monographic Study Report published by the district in October 2013, the health network in Gasabo district comprises of five hospitals, 16 public Health centres, 29 dispensaries, 17 private clinics, 17 health post; with 3 community health workers at every village. According to DHS5, 2015, only 73.5% of the populations of Gasabo district are covered by health insurance schemes.

The stunting rate among children under 5 years is 22.3 % compared to 38% at the national level. The fertility rate is at 4.0% compared to 3.0% wanted by the same people. The use of contraception is still at low levels with only 44.3% of active women (15-49) and 54.9% of men (15-49) using some form of contraceptives. The mortality rate of under 5 years old is 41 per 1,000 live births compared to 50 at national level (DHS5, 2015).

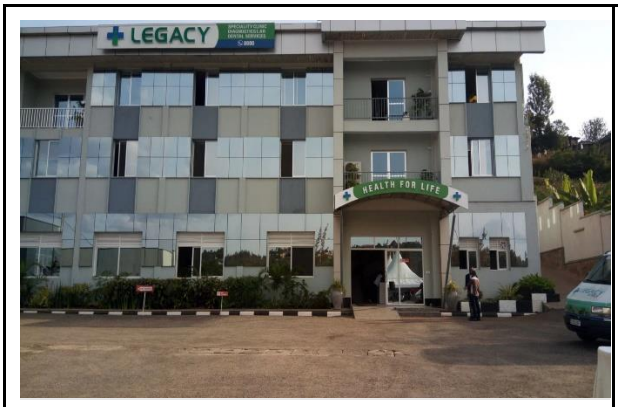
The District health profile shows that HIV prevalence is at 5.9% (7.4% in female and 4.4 % in male) for the population aged between 15-49 years. This prevalence is higher than the national average which is 3.6% for female and 2.2% for male of the same age group.

In terms of health personnel, there is a big challenge of inadequate number of doctors, nurses, and midwives; for example, Gasabo district has only 22 medical doctors (both general practitioners and specialists, 255 nurses, and 64 midwives.

7.7.1 Project Area

The closest hospital to KSEZ is Legacy Hospital located about 2km away and the Kanombe Military Referral Hospital located about 5km away (Figure 7-5). There are no health facilities located at or within close proximity of the Project Site; therefore, the Project activities are not expected to directly affect the physical infrastructure or tranquillity of any health facility.

Disease prevalence in the Project Area mirrors that of the wider County as stated above. The impact of the Project activities on the disease prevalence within the Project Area, particularly, Occupational Health and Safety (OHS) and community health is assessed in Chapter 9 of this report.



Legacy Hospital

Kanombe Military Referral Hospital

Figure 7-5 Health Facilities in the Project Area

7.8 Archaeology and Cultural Heritage

7.8.0 District Level

Most prominent and yet sorrowful heritage of Rwanda located in Gasabo District is the Kigali Genocide Memorial at Gisozi, where 250,000 victims were buried. This memorial also serves to educate on how the 1994 Genocide against the Tutsi took shape and examines genocide in the 20th century. This memorial is more than 10km from the KSEZ and close to the Kigali City Centre. (Figure 7-6).

Figure 7-6 Kigali Genocide Memorial in Gasabo District

7.8.1 Project Area

There is no archaeological or cultural heritage site within or in close proximity of the Project Site or the wider KSEZ.

7.9 Infrastructure

7.9.0 District Level

According to EICV4, in Gasabo District, 14.2% of HHs have their own means of transport including; 4.2% with cars, 0.7% with motorcycles and 9.4% with bicycles, while 62.8% regularly use public transport . In the EDPRS period of 2013-2018, the district made more efforts in developing the district transport network, where 24.9 km of asphalt road were constructed, 12.9 km of cobblestones constructed, 42.4 km of earth road rehabilitated, 105 km feeder road constructed in different sectors of Gasabo district and 7 bridges constructed.

In the same period, under the urbanisation and rural settlement, the number of HHs in villages (*imidugudu*) were 4,742 (3.45%), HHs in planned areas were 14,985(10.9%), dispersed/isolated HHs were 37,238 (27.06%), HHs in Slums were 80,181 (58.5%) of all HHs in Gasabo district.

The EICV4 (2014) also showed that, in Gasabo district, the primary source of energy used by households for lighting are dominated by electricity (68.3%) followed by other sources like oil , firewood, candle, kerosene solar panel, and battery. Additionally, the electricity network has been improved and currently the connectivity within the district is at 100%, ready for domestic use. Industrial energy facilities are in place for two industrial zones (i.e. Jabana and KSEZ).

On the Information and Communication Technology (ICT) and communication sector, above 90% of the adult population is subscribed to mobile phone and all 73 district administrative offices are equipped with public television sets, while all district officials from village level including leaders for Umudugudu, Cells, sectors & District councils and all staff communicate free of charge using call user group (CUG). The coverage of internet connectivity for 4G is now in the whole district which facilitates both service delivery and access to information across the district (Gasabo DDS, 2018-2024).

7.9.1 Project Area

The KSEZis accessed via the asphalt Kigali- Kayonza national road. It is connected to the Kigali international airport by an asphalt road just 4 km away and also to Kigali City Centre by asphalt roads 12 km away.

The main infrastructure around the Project Site in the KSEZ includes; asphalt access roads (Figure 7-7), electricity transmission lines, street lighting network and sign posts, telecommunication, optic fibre, water supply network, sewer networks as already presented in the respective sections above.

Figure 7-7 Roads in KSEZ Project area

7.10 Summary of the Socio-economic Baseline

- The Project Site is located at KSEZ which is a gazetted industrial park devoid of settlements. Therefore, the Project fits within the planning of the Project Area and its development will not cause any physical or economic displacement. There are a number of other light and heavy industrial activities around the Project Site.
- The facilities within the Project Area are currently connected to the Kigali Municipal water supply system, with regular and sufficient water supply.
- Liquid effluent for all the facilities within the Project Area is discharged directly to the SEZ sewer system.
- Observations made at the time of the Site visit conducted in November 2022 showed that there are proper concrete drainage channels along the constructed access roads in the Project Area as well as manholes (expected to be connected or planned for connection to the sewer line).
- Given that the Project Site is located in a gazetted SEZ under the management of PEZ, all land acquisition was completed between 2006 and 2008. No physical or economic displacement currently applicable. There are no know outstanding land acquisition issues.
- No social service facilities at or in the immediate vicinity of the Project Site such as schools, health facilities, churches, etc., except for 2 International universities in the Phase II of the KSEZ, a distance away from the Project plots. Therefore, the Project will not directly impact on any physical infrastructure or tranquillity there-in.
- There are two hospitals within a 5 km distance from the Project Site, one of them is referral hospital, which could be for any Project related medical emergencies that require referral.

- There is no archaeological or cultural heritage site within or in close proximity of the Project Site or the wider KSEZ.
- The main infrastructure around the Project Site include; asphalt access roads, electricity transmission lines, street lighting network and sign posts, telecommunication network, optic fibre, water supply network, and sewer system network.

8. STAKEHOLDER ENGAGEMENT

This Chapter presents a summary of the stakeholder engagement undertaken as part of the ESIA process for the Project. It also serves as a summary of a more detailed SEP, which presents the engagement approach and identifies stakeholders and the mechanisms through which stakeholders have been engaged. The complete SEP is included in **Appendix C**.

Since the Project is a Category B project, the engagement process has been scaled to ensure all affected parties are consulted and engaged with adequately. This includes establishing an external communication and maintaining an open line of communication throughout the project cycle. Additionally, the engagement process has been designed to meet both Rwandan legal requirements for public participation in relation to an ESIA Report, and international requirements for engagement as outlined in the IFC PS.

8.0 Objectives of Stakeholder Engagement

The objectives of engaging stakeholders and the community during the ESIA process and beyond include:

- **Ensuring understanding:** An open, inclusive and transparent process of culturally appropriate engagement and communication is undertaken to ensure that stakeholders are well informed about the Project as it develops. Information is disclosed as early and as comprehensive as possible and appropriate.
- **Involving stakeholders in the assessment**: Stakeholders are included in the scoping of issues, the assessment of impacts, the generation of mitigation and management measures and the finalisation of the ESIA Report. They also play an important role in providing local knowledge and information for the baseline to inform the impact assessment.
- **Building relationships**: Through supporting open dialogue, engagements help establish and maintain a productive relationship between the Project and stakeholders. This supports not only an effective ESIA, but also strengthens the existing relationships and build new relationships between the Project Proponent and stakeholders.
- **Engaging vulnerable peoples**: An open and inclusive approach to consultation increases the opportunity of stakeholders to provide comment on the Project and to voice their concerns. Some stakeholders, however, need special attention in such a process due to their vulnerability. Special measures are to be considered to ensure that the perspectives of vulnerable stakeholders are heard and considered.
- **Managing expectations**: It is important to ensure that the Project does not create or allow unrealistic expectations to develop amongst stakeholders about Project benefits. The engagement process serves as one of the mechanisms for understanding and then managing stakeholder and community expectations, where the latter is achieved by disseminating accurate information in an accessible way.
- **Ensuring compliance**: The process is designed to ensure compliance with both local regulatory requirements and international best practice.

8.1 Project Stakeholders

A stakeholder is defined as any individual or group which is potentially affected by the Project or who has an interest in the Project and its potential impacts. Different issues are likely to concern different stakeholders; as such stakeholders have been grouped based on their connections to the Project.

Table 8.1 presents the range of stakeholder groups that have been identified and included within the stakeholder engagement process to date.

Table 8-1 Project Stakeholders

Stakeholder Category	Stakeholder Group	Stakeholders Required to be consulted	Department	Relevance	Date of Consultation
National Government	National Regulatory Bodies Government Agencies	REMA	Environmental Permitting and Licensing Division	The aim was to conduct a stakeholder engagement meeting with the relevant departments at National Level and determine whether further engagements are required at the national level.	02/11/2022
		RDB			03/11/2022
		NAEB	Traditional commodities Division Cold chain specialist	NAEB is the Institution supporting export of non-processed and processed foods. They provide pack houses and cold rooms. The aim was to understand the current cold storage status in Rwanda.	03/11/2022
		FDA	Quality control division (HQ)	Stakeholder engagement was to understand whether CSRL requires any prior licensing from FDA for processed foods and RICA for unprocessed food as a cold storage facility other than food storage and processing international standards.	03/11/2022
		RICA	Quality control department		02/11/2022
		RSB	Standards and Metrology department	The aim of the engagement was to understand the requirements, standards designed for a cold storage facility and different services offered by RSB such as quality testing certificates.	02/11/2022
Special Economic Zone	Prime Economic Zone (PEZ) Ltd	PEZ management	Managing Director Infrastructure manager	The objective engagement was to understand the process of land acquisition of identified project plots, zoning of the KSEZ, infrastructure available, capacity of services available at KSEZ, whether project activities are acceptable in and around the designated project area.	02/11/2022

Pharmaceutical and Medical stores	RMS	RMS management	▪ Operation Director	The aim was to understand the potential demand for storage of pharmaceuticals in Rwanda and whether the capacity is sufficient.	03/11/2022

8.2 Approach to Stakeholder Engagement

Stakeholder engagement for the Project will be and was undertaken using a staged approach in line with the various phases of the project, which will include engagements during:

- The ESIA process (i.e., pre-project implementation);
- Project implementation (construction phase); and
- Post-project implementation (operations and decommissioning phases)

Stakeholder engagement for the Project will be and was undertaken using a staged approach in line with the various phases of its development as follows:

- ESIA process engagement; and
- Post-ESIA engagement.

8.2.0 ESIA Process Engagement

The Objectives of the ESIA process engagement were to:

- meet/communicate with key stakeholders and introduce them to the Project and ESIA process.
- discuss the Project with the stakeholders including identified impacts and the plans in place to manage them.
- obtain stakeholders' views on the Project.
- obtain stakeholders' concerns on the Project.
- understand stakeholders' expectations from the Project.
- collect baseline data through a variety of methods including using participatory tools.
- notify stakeholders of the next steps of the Project development.
- establish an open line of communication to ensure that all Project concerns and grievances are address in an adequate and timely manner.

Table 8-2 presents a summary of the stakeholder engagements conducted during the ESIA process, while a summary of the key issues raised/ comments made is presented in Table 8-3. The results of the stakeholder consultations have been incorporated into the baseline information as well as into the impact assessment and mitigation measures Chapter (Chapter 9 of this ESIA Project Report).

Table 8-2 Details of ESIA Process Stakeholder Engagement

Mode of Engagement	Stakeholder	Engagement Date	Venue
KII	PEZ Management	2nd November 2022	Prime Economic Zone (PEZ) Ltd, Kigali
	NAEB	3rd November 2022	KK 530 St, Kigali, Rwanda
	FDA	3rd November 2022	32 KG 9 Ave, Kigali

	RICA	2nd November 2022	KK 8 Ave, Kigali, Rwanda
	Rwanda Medical Supply Ltd	3rd November 2022	KN 8 Ave, Kigali, Rwanda
	RSB	2nd November 2022	KG 7 Ave, Kigali, Rwanda
	RDB	2nd November 2022	KG 7 Ave, Kigali, Rwanda
	REMA	3rd November 2022	

8.2.1 Outcomes of Engagement Conducted to Date

As indicated in Table 8-2 stakeholder engagement meetings were held during the ESIA process of the Project.

The key questions and concerns raised by stakeholders during the ESIA process are outlined in Table 8-3 and further details included in the SEP (**Appendix C**). The BID, detailed minutes of the stakeholder engagement meetings conducted during the ESIA process, attendance registers, and the developed stakeholder engagement database, are all presented **in Appendix D** and **Appendix E**.

Table 8-3 Outcomes of ESIA Process Stakeholder Engagements

Main Theme brought up by Stakeholders	Key Stakeholders' Issues/ Comments
On Stakeholder Engagement	Consult widely, including consultations with PEZ, the NAEB, FDA, RICA, Rwanda Standards Board (RSB), RMS, REMA, RDB.
	Consider Stakeholder issues raised during stakeholder consultation process.
On Positive impacts/ opportunities	▪ Employment opportunities for the local community members during construction and operations. ▪ Achievement of a cold storage facility. ▪ Price stability for agricultural products (meat, horticulture products, etc.) and pharmaceuticals. ▪ Food security (as a result of improved storage). ▪ Achievement of agriculture best practice (related to storage of agricultural produce). ▪ Enhanced trade with regards to fresh products. ▪ Contributes towards development of the Kigali Special Economic Zone. ▪ Contribution to meeting required food standards for export of food and animal products.
Shared facilities	There are shared facilities within the Project area, such as electricity, water, sewer lines, optic fibre etc. It is best practice to inform the PEZ management and neighbours of any planned activities or disruptions that may take place. This will also help in good management and in harmonised planning and development.
Stormwater management	PEZ mentioned that the developer presents a formidable stormwater management plan as part of project designs for construction approval on how they will manage rainwater and run-off to avoid flooding of the receiving drainage channels.

Main Theme brought up by Stakeholders	Key Stakeholders' Issues/ Comments
Management of Negative Impacts	▪ Management of dust and noise emissions. ▪ GHG emissions ▪ Stormwater management/ drainage ▪ Potential of ammonia leakage and associated impacts. ▪ Waste Management with reference to potential organic waste and effluent management. ▪ Increased usage of the KSEZ Infrastructure. ▪ Storage of potable water supplied on site to avoid issues during water outage. ▪ Smell of organic waste during operation. ▪ OHS diseases especially for those who will work in the cold storage facility for a long period. ▪ Compliance to international and national standards of clientele for food storage, processing and pharmaceutical storage.

All stakeholder comments were noted and were considered in the assessment of the Project at all phases. Where necessary, responses were given by both the ERM and Earth Systems team present in the various meetings (refer to Appendix D for detailed minutes of the stakeholder engagement meetings).

8.2.2 Post ESIA Engagement

The Project is committed to continuous engagement with stakeholders throughout the life of the Project, from the current stages of planning and design, through construction into operation, and eventually to closure and decommissioning.

Plans and activities implemented during the next stages of Project planning and development will therefore feed into and inform on-going stakeholder engagement as the Project moves into these stages, ensuring that two-way dialogue with those affected, both positively and negatively by the proposed Project is maintained.

The aim will be to ensure that the Project remains in contact with all interested parties and cognisant of their concerns, and that these are addressed in an effective and timely manner. At each stage, a detailed schedule of activities and events will be developed and widely disseminated so that people know how to interact with and participate in the Project.

Post ESIA stakeholder engagement is expected at the following Project stages:

- **Mobilisation phase**: At this stage, information regarding the exact locations of specific Project infrastructure, detailed construction schedule, expected construction team (including employment opportunities) will be shared with the Project stakeholders.
- **Construction phase**: Periodic Project updates as well as any changes in planning will be shared with Project stakeholders. The IFC PS also requires consultation with stakeholders and the implementation of a worker and community grievance mechanism (see Section 8.3).
- **Demobilisation phase**: Notifying the stakeholders at the end of the construction activities and close-out of outstanding construction phase related grievances. This is also expected to mark the start of the operation phase.
- **Operations Phase**: Periodic updates to Project stakeholders on the operations issues, share operation information where required or deemed necessary and communicate any changes in operation plans. The IFC PS also requires consultation with stakeholders and the implementation of a worker and community grievance mechanism (see section 8.3).
- **Decommissioning Phase**: Inform stakeholders when the Project comes to an end as well as future plans for the Project Site.

8.3 Project Grievance Mechanism

In accordance with international good practice, the Project has established a specific mechanism for dealing with grievances. A grievance is a complaint or concern raised by an individual or organisation who judges that they have been adversely affected by a project during any stage of its development.

Further detail on the grievance mechanism process is outlined in the SEP in **Appendix C.**

9. ANTICIPATED IMPACTS AND MITIGATION MEASURES

The predicted impacts to the physical, biological, and socioeconomic environment as a result of the Project are described in this *Chapter*. This *Chapter* also details potential mitigation measures in order to avoid, minimise, reduce, remedy or compensate for potentially negative impacts, and enhance potential benefits of the proposed Project. Furthermore, this *Chapter* provides a prediction of the residual impacts that will remain, assuming that the appropriate mitigation measures are implemented.

The development of mitigation/management measures and the management of residual impacts are fully described in the ESMMP (see Chapter 10). The methodology to identify and assess impacts is explained in Chapter 3.

The impact assessment laid out in this *Chapter* is as follows:

- Each section begins with the type of impact being assessed (e.g., *Section 9.2.1* – Impacts on local air quality, and *Section 9.2.2* – Impacts on the noise environment).
- Background information relating to the impact is then provided. This includes a description of the baseline environment that will be affected, the Project aspect or activities that will cause the impact and a description of the effected receptors.
- The significance of the impact pre-mitigation is then assessed and rated through use of a rating table.
- Following the pre-mitigation rating tables, a section describing the recommendations and mitigation/management measures proposed are provided.
- Once the recommended mitigation/management measures are provided, a residual impact (post-mitigation) is rated through use of a less detailed rating table.

Descriptions of impact assessment terminology are provided in *Chapter 3.*

***Note**: It is important to note that the positive impacts are not rated, they are merely stated. It is considered sufficient for the purpose of the Impact Assessment to indicate that the Project is expected to result in a positive impact, without characterising the exact degree of positive change likely to occur.*

9.0 Construction Related Impacts

9.0.0 Impacts on Local Air Quality

9.0.0.0 Description of the Baseline Environment

The Project Site is located in the largely developed KSEZ, Munini Village on the outskirts of CoK, where a number of light and heavy industrial projects has already been established. The ambient air quality in the area is expected to be influenced by a combination of the various industries located within the KSEZ as well as the access roads and nearby RN3 highway.

9.0.0.1 Proposed Project Activities

During the construction phase, the main sources of air pollution will be earthworks and transport of construction materials along access roads, which will likely lead to a rise in nuisance and particulate dust.

In addition, exhaust emissions from construction equipment and machinery are expected to include CO_2, NO_2, SO_2 and Volatile Organic Compounds (VOCs) from diesel/ petrol engines.

9.0.0.2 Sensitive Receptors

The main sensitive receptors are the neighbouring facilities within the KSEZ and construction workers. There are no affected households (residential areas) at or in the immediate vicinity of the Project Site given its location in a largely developed industrial area, with the nearest settlements located Kanombe, which is on a hillside 14.9 km across the SEZ and further 8km north in Bumboga. As such, these settlements are considerably far from the Project Site and will not be affected by dust emissions from the Project site. Dust at the Project Site will be higher during the dry months.

9.0.0.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on local air quality during the construction phase will be "**Minor Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impact		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The gaseous and dust emissions will be localised within KSEZ.
Duration	Short term	The effects of gaseous and dust emissions will cease shortly after the construction phase.
Scale	Medium	This impact will be manifested within the Project Site. However, if the emissions exceed the maximum levels permitted in the Rwanda Standards EAS 752:2010 Ambient air quality tolerance limits for dust, Rwanda Standards EAS 752:2010 for emission limits, and IFC guidelines (Chapter 2) at source, this will pose health concerns to receptors, and will result in a breach of relevant legal requirements.
Frequency	Continuous	This impact will be manifested throughout the construction phase.
Magnitude		
Small Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Although the Project Site is devoid of settlements, there will be Project workers as well as well as receptors along access/ delivery routes that will be used.		
Significant Rating Before Mitigation		
Minor Negative		

9.0.0.4 Mitigation/Management Measures

- Develop and implement a grievance procedure (for both workers and other stakeholders) to manage any dust complaints.
- Where feasible, regular wetting or chemical treating of exposed open earthworks such as at the levelled and material laydown areas, may be required. Upon completion of earthworks, stabilization of temporary used surfaces (i.e., establishing vegetative cover as part of the landscaping activities, or placing ground cover) should occur as soon as possible.
- Regular wetting of construction access routes. This will not only lower dust levels but will improve visibility, and hence lower the risk of accidents.
- Vehicles to maintain speed limits imposed.
- The smallest possible area for cleared ground required for construction work should be exposed.
- Drop heights of material should be minimised, as far as reasonably possible.

- Soil and aggregate stockpiles should be managed in accordance with the mitigation / management measures provided for Impacts on Water Resources (refer to Section9.0.2).
- Where feasible and reasonable, vehicles that are compliant with recent emission standards (for example, EURO Tier 3) should be used. These vehicles should be maintained in reasonable working order. When not in use, vehicles should be switched off, unless impractical for health and safety reasons (for example maintenance of air conditioning).
- Construction equipment should be maintained and serviced on a regular basis to ensure that they function optimally and to reduce excessive emissions, this will also apply to all stationary generators utilised on site.
- Issue all Project workers appropriate PPE including dust masks where required.
- Develop and implement an appropriate Traffic Management Plan (TMP) throughout the construction phase.
- Keep neighbouring developments up to date with the construction programme and activities.
- Any spillages at the Project Site or along access routes should be cleaned up within a reasonable time in line with the spill response procedure to prevent secondary emissions.

9.0.0.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact on local air quality will be a "**Negligible Negative Impact**" post mitigation per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The gaseous and dust emissions will be localised within KSEZ.
Duration	Short term	The effects of gaseous and dust emissions will cease shortly after the construction phase.
Scale	Small	The concentration of emissions will be kept below the maximum levels permitted in the Rwanda Standards EAS 752:2010 Ambient air quality tolerance limits for dust, Rwanda Standards EAS 752:2010 for Emission limits and IFC guidelines (*Chapter 3*).
Frequency	Continuous	This impact will be manifested throughout the construction phase.
Magnitude		
Negligible Magnitude		
Significant Rating After Mitigation		
Negligible Negative Impact		

9.0.1 Impacts on the Noise Environment and Vibrations

9.0.1.0 Description of the Baseline Environment

The Project Site is located in an already largely developed industrial area where potential sources of noise and vibrations include light motor traffic along access roads and construction activities at other sites within the KSEZ. The ambient noise within the Project Area is therefore influenced by the light and medium industrial activities at a number of sites within the KSEZ.

9.0.1.1 Proposed Project Activities

The main source of noise and vibrations will be attributed to construction machinery and construction vehicles that will be used during the construction phase as well as other onsite construction activities. There will be no blasting at the Project Site; the required gravel will be obtained from available commercial suppliers. Soil required for fill material will be obtained from elsewhere on the site.

No construction activities will take place at night.

9.0.1.2 Sensitive Receptors along the Project Road

KSEZ in which the Project Site is located is devoid of settlements, so the main noise sensitive receptors will be Project workers (casual contractors and permanent employees) and workers at neighbouring light industrial developments.

9.0.1.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on the noise environment during the construction phase will be "**Minor Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The noise and vibration impacts are expected to be limited within the KSEZ.
Duration	Short term	This impact will cease as soon as the construction activities are completed.
Scale	Moderate	The noise and vibrations generated will likely exceed the maximum levels permitted in the Rwanda standard RS 236:2014 ambient air quality standards in respect to noise and IFC guidelines (Chapter 2) on the Project site, but will be lower at the Project boundary.
Frequency	Continuous	Noise and vibrations will be generated throughout the construction phase (daytime); however, no noise will be generated at night since construction activities are expected to be limited to daytime activities only.
Magnitude		
Medium		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Low		
The sensitive receptors will mainly comprise of construction workers and other workers at the neighbouring light industries within the KSEZ.		
Significant Rating Before Mitigation		
Minor		

9.0.1.4 Mitigation/Management Measures

General Measures

The following mitigation measures are recommended to keep the noise and vibration levels below the applicable national standards:

- Develop and implement a grievance procedure in the event of any noise and vibration impact complaints being received.
- Periods of respite should be provided in the case of unavoidable exposure to high noise level events. These respite periods should be negotiated with the affected receptors.
- Regular inspection and maintenance of all machinery and vehicles.
- Installation of silencers or acoustic enclosures on machinery, where applicable, such as installation of suitable mufflers on engine exhausts and compressor components as well as the use of portable sound barriers around noisy equipment like generators.

- As far as reasonably possible, avoid or minimise Project traffic routing through community areas and the implementation of speed limits for all construction vehicles. This needs to be stipulated in a TMP.
- Limiting hours of operation for specific equipment or operations (e.g. trucks or machines). In particular, limit use of heavy construction machinery to daytime only (06:01 am – 8:00 pm).
- Noise monitoring against the performance criteria presented above should be implemented if persistent noise complaints are received.
- All employees and contractors are to be provided with, and are to wear, appropriate hearing protection such as earmuffs and earplugs where necessary (refer to IFC EHS General Guidelines chapter 2.3 for more information).
- Avoid idling of Project vehicles and equipment when not in use.

9.0.1.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact on the noise environment will remain a "**Minor Negative Impact**" post mitigation per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The noise and vibration impacts are expected to be limited within the KSEZ.
Duration	Short term	This impact will cease as soon as the construction activities are completed.
Scale	Low	The noise and vibration levels on the property boundary is likely to be less than 80-90 dB(A) – to be confirmed by monitoring, and in conformance to the Rwanda standard RS 236:2014 ambient air quality standards in respect of noise and IFC guidelines.
Frequency	Intermittent	Noise and vibrations will only be generated when Project equipment and machinery are being operated. No Project associated noise will be generated at night.
Magnitude		
Small		
Significant Rating After Mitigation		
Minor		

9.0.2 Impacts on Water Resources

9.0.2.0 Description of the Baseline Environment

There is no river or stream at the Project Site. There are existing drainage and sewage infrastructure connected to the Kigali Municipal system, which serve the entire KSEZ. Stormwater and wastewater from the Project will be diverted to the already existing Kigali Municipal infrastructure.

9.0.2.1 Proposed Project Activities

The construction phase will be associated with earthwork activities. Earthworks will involve excavations and levelling, stock piling and dumping, in some cases. The working and movement of soil will loosen it and facilitate potential water and wind erosion. Water erosion, through surface run-off, carries with it sediments, which if not well controlled, could potentially impact the water quality downstream of the Project Site. The fact that the Kigali Municipal has already established the necessary stormwater and wastewater infrastructure that serve the developers within the KSEZ will

also help mitigate the risk of stormwater and wastewater management. The stormwater drain will be running along the eastern boundary at the bottom of the slope.

Typical to the magnitude of construction activities, small and heavy trucks as well as heavy machinery will be utilised for earthworks and material and equipment transport. These machines may have oil and grease leaks during use; refuelling or minor maintenance that may be done on site, causing contamination of the soils and surface waters. Through run off, and percolation, the oil-contaminated waters may flow into the downstream drainage channels, or infiltrate into the aquifer and contaminate ground water. The quality of these water sources would therefore be degraded, potentially causing associated health risks to the users within the KSEZ area.

Construction wastes of concern will vary from non-hazardous solid wastes, contaminated solid wastes and hazardous liquid wastes. Most of these wastes, other than the aesthetic impacts they cause, may be carried off site by wind action, surface run-off or percolation, into the downstream drainage channels if not managed properly, or infiltrate into the groundwater aquifer, affecting their quality.

In summary, there are several source pathway receptors for water resources during construction and the following as potential contaminants:

- Soil disturbance resulting from excavation and grading activities, leading to erosion and sedimentation that can transport sediment, soil particles, and other contaminants into nearby surface waters and groundwater resources.
- Fuel and lubricant spills from heavy machinery and equipment. These fuels can contain contaminants such as petroleum hydrocarbons and heavy metals, which can infiltrate into the soil.
- Leaching through chemical use such as concrete cement and adhesives typical contain hazardous substances such as solvents, acids, and heavy metals Additionally, poor disposal of construction waste may further exacerbate leaching and contribute to groundwater contamination.
- Stormwater runoff can contribute to contamination through the collection of pollutants and contaminants from the construction, the runoff may likely be discharged into nearby surface waters and groundwater resources. This includes sediment, debris, and pollutants such as oil, grease, and chemicals.

The KSEZ plot sites have site specific waterpoints accessing groundwater typically through dug wells. The nearest settlements are located Kanombe, located on a hillside 14.9 km across the SEZ and Bumbog,which is further north (8km away). The identified impacts are likely to have a moderately low impact groundwater resources used by neighbouring facilities, given the size of the project and the relatively short-term construction. Additionally, there are mitigation measures that have been identified (see sections below) based on best management practices during construction, which aim to minimize the impacts of the contamination that may occur.

The Project's water requirements will be small quantities during the construction phase and will be sourced from the already existing Kigali Municipal water supply system, which has established infrastructure to serve developers within the KSEZ. For the Project, water demand is relatively low, at about 82 m^3 for daily cooling water demand (operational), and other smaller quantities of water required for ablution facilities and food packaging activities.

9.0.2.2 Sensitive Receptors

The main sensitive receptors of any potential water quality impact are the tributaries in the wider Project Area, to the south east of the Project Site. However, given the already existing stormwater and wastewater management infrastructure already established by the Kigali Municipal, that is already serving the rest of the KSEZ, the impact of the Project on water availability and water quality will be negligible. The main water users are located within the KSEZ area, majority of the plot owners within the KSEZ have locational water points.

9.0.2.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on water resources during the construction phase will be "**Negligible**" pre-mitigation and has therefore not been discussed further. However, to further promote good environmental management, the following management measures should be implemented for the Project.

- Communicate all the construction related plans and schedules to the local Project stakeholders prior to the commencement of the construction activities.
- Regularly maintain the Project equipment as per the manufacturer's instruction to avoid the possibility of any leaks and spills.
- Liaise with the PEZ on wastewater discharge and stormwater management requirements.
- Method Statements detailing spill emergency response and clean-up procedures for spills should be developed.
- Training regarding proper methods for transporting, transferring and handling hazardous substances that have the potential to impact surface and groundwater resources, should be undertaken.
- Areas where spillage of soil contaminants occurs should be excavated (to the depth of contamination) and suitably rehabilitated. If any other minor spillage occurs, it should be cleaned as soon as possible, but within the same shift and the contaminated area should be reinstated. All contaminated material should be suitably disposed of.
- The ad hoc maintenance, with the exception of emergency repairs; of vehicles in and around the Project Site should be prevented, as far as reasonably possible. All major services and ad hoc maintenance of vehicles and equipment should be done at a designated workshop. The workshop should be properly constructed to prevent pollution and should as far as reasonably practical include containment berms and an oil/grease trap.
- All construction areas and associated facilities should be maintained in a good and tidy condition; debris and wastes should be contained in such a way that they cannot become entrained in surface runoff during periods of heavy rain.
- Where practical, exposed surfaces and friable materials should be covered/sheeted.
- Sufficient portable toilets at active work areas should be provided for site staff and workers and these should be serviced regularly by a competent and suitably qualified person.
- The sewage treatment/ containment system should be managed in a manner that results in zero discharge of raw sewage to the environment, and if treated sewage is discharged into the environment then this should conform to recognised Rwandan discharge standards prior to discharge.
- All wastewater which may be contaminated with oily substances should be managed in accordance with an approved Waste Management Plan, and no hydrocarbon-contaminated water should be released into the environment.

Specific Measures – Flow (including stormwater water)

- Project infrastructure should be designed and located to minimise the impacts to natural water flow e.g. ensuring water points established within the plot area is situated at the depreciating slope level
- Connect stormwater channels from the Project Site to the main stormwater ducts established by the Kigali Municipal.
- Ensure protection of soil adjacent to the side drains and the constructed drainage facilities.

- Spoil/excavations should be visually assessed to determine if it is contaminated. In the event that the spoil is contaminated, it should be handled as a hazardous material and disposed of under supervision and into controlled dumping areas.
- Assessment of source pathway receptor to conclude on the possibility of users being impacted after the construction phase

9.0.3 Impact on Soils

9.0.3.0 Description of the Baseline Environment

The soils of the Project Area and Project Site in particular, are generally lean clay with sand. The increase of sand content decreases the plasticity of sand-clay mixtures.

9.0.3.1 Proposed Project Activities

Preparation of the Project Site for construction will require vegetation clearance, site levelling, grading and soil compaction. The two plots are relatively steep and will require the standard cut and fill along with retainer walls. The Project Site will not require importation of soil except for specific construction materials such as gravel and aggregates which will be sourced from operational commercial quarries.

Vegetation cover is an important physical factor that influences soil erosion. Intact vegetation cover reduces the impact of raindrops or wind action on the soil, slows down the rate of surface runoff allowing for percolation, filters sediment load in the surface runoff and binds the soil together providing stability. Vegetation clearance will likely leave the surface soils prone to rain and wind erosion. However, much of the Project Site will be covered by the warehouse and the remaining surfaces such as parking areas paved while the rest of the compound will be planted with landscaping plants.

In addition, excavation activities are known to alter the soil's physical properties like structure, aeration and porosity, all of which affect soil fertility; however, given that the Project Site is located in an industrial area, soil fertility within the Project footprint is not an issue of value or concern.

9.0.3.2 Sensitive Receptors

The sensitive receptor for this impact is the soils within the Project footprint; however, given that the Project Site is located within an approved industrial area where construction and operation of light industries is expected; they are of negligible sensitivity.

9.0.3.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on soils during the construction phase will be "**Negligible**" pre-mitigation and has therefore not been discussed further.

9.0.4 Impact on Biodiversity

9.0.4.0 Description of the Baseline Conditions

The habitats in the Project Area are highly modified by human activities particularly urbanisation and industrialisation. It therefore does not contain any important biodiversity habitats and not of any conservation concern.

However, *Lantana camara*, an invasive alien plant species (IAPs), was identified at the Project Site. The CBD defines an invasive alien species as one that is established outside of its natural past or present distribution, and whose introduction and/or spread threatens biological diversity[8]. The IUCN

[8] Convention for Biological Diversity, invasive species page. Available at: https://www.cbd.int/invasive/WhatareIAS.shtml

Red List of Threatened Species[9] rates the presence of invasive alien species globally as the second most significant threat to biodiversity[10], and there is a growing global awareness of the problems associated with alien and invasive species. Alien species can be introduced either accidentally or intentionally. Although only a small percentage of alien species have the potential to become invasive, their impact is marked and usually is irreversible, displacing native species and leading to degradation of habitats. However, given that the Project Site is not of any conservation concern, the threat of the identified *Lantana camara* is low provided that materials (wastes) from the Project Site are not transported to conservation areas.

9.0.4.1 Proposed Project Activities

Construction activities will include vegetation clearance to pave way for the construction of the Project infrastructure. Wastes from the Project Site (including small volumes of soil and vegetation) will be collected and disposed of at identified disposal Sites off-site[11].

9.0.4.2 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, the impacts on biodiversity will be a "**Minor Negative Impact**" pre-mitigation as summarised below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impacts on biodiversity are expected to be restricted to the construction footprint and material/waste disposal sites.
Duration	Long Term	Many infestations of IAPs are extremely persistent once established, unless active control measures are implemented.
Scale	Large	The identified *Lantana camara* presents a risk of being spread. Without proper control, IAP infestation can be on a large scale.
Frequency	Constant	IAP infestation will occur constantly on disturbed sites and will multiply if inadequately controlled.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Low Sensitivity		
The Project Site is not of conservation value		
Significance Rating Before Mitigation		
Minor Negative Impact		

9.0.4.3 Mitigation/Management Measures

Control Measures for Invasive Plant Species

- All alien vegetative and/or seed-bearing material that is removed should be burnt on site to prevent the distribution of seed. Request for authorisation from the local administrative authorities i.e., REMA. (See Rwanda's Guidelines for the Management of Invasive Alien Species and Law N° 15/2018 of 13/04/2018).
- Alternatively, in absence of a license, the Proponent can employ mechanical and chemical methods to manage invasive species. This includes physically removing species applicable

[9] IUCN Red List of Threatened Species. Available at http://www.iucnredlist.org/

[10] IUCN Website, invasive species page. Available at: https://www.iucn.org/theme/species/our-work/invasive-species

[11] The Impact of wastes and effluents assessed in detail in Section 9.0.5

for small infestations. Other methods include mowing, cutting, and smothering. Chemical control methods on the other hand consist of use herbicides, biocides, and disinfectants in compliance with local guidelines. The most effective method will generally involve a mix both chemical and mechanical, while considering the impacts on non-target species and the environment.

Landscaping Measures

- In liaison with the management of KSEZ (the PEZ), appropriate landscaping plants should be planted in the compound of the Project. Where possible, landscaping should be done with indigenous plant species. Exotic and ornamental plants must be avoided.

9.0.4.4 Residual Impact (Post-mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impacts on biodiversity will be a "**Negligible**" post mitigation as per the summary below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impacts on biodiversity are expected to be restricted to the construction footprint and material/waste disposal sites.
Duration	Short Term	Effective control measures will reduce the duration of infestation by IAPs.
Scale	Negligible	With adequate management measures in place, the extent of this impact will be reduced to negligible levels.
Frequency	Unlikely	With the implementation of the management measures, the impact on biodiversity is unlikely to happen.
Magnitude		
Negligible		
Significance Rating After Mitigation		
Negligible		

9.0.5 Waste and Effluent

9.0.5.0 Description of the Baseline Environment

The existing water supply and sewerage management facilities within the KSEZ has trunk sewer lines laid along the road reserves of the KSEZ's service corridors connected to all plots.

The Project will also have an on-site WWTP installed below the ground floor of the facility. This will treat and recycle water used in the refrigeration technology and food packaging undertaken on site, for example packaging of fruits and vegetables. The WWTP will discharge effluent treated to national discharge standards into the sewage trunk lines.

For wastes including general wastes, packaging, oils and lubricants, it is likely that the Project will use the existing RURA-licensed waste disposal firms that service KSEZ. These waste streams will be sorted in a designated waste sorting area.

9.0.5.1 Proposed Project Activities

The Project activities will be associated with a number of wastes ranging from general construction, packaging waste including pallets and plastics from construction materials, electrical and mechanical equipment, earth material from excavations, hazardous waste such as paint residues and any fuel or oil leakages) and domestic waste that will be generated during the construction process.

In addition, effluent waste will be generated in the form of both grey and black water by the construction workforce.

If the generated waste is not well managed, it will cause a nuisance and become of a hygiene concern in the Project Area.

9.0.5.2 Sensitive Receptors

The sensitive receptors to poor waste and effluent management will be other developers within the Project Area as well as the downstream drainage network.

9.0.5.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impact of effluent and waste management during the construction phase will be "**Moderate Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will only be manifested within the Project Area.
Duration	Medium term	If appropriate waste management measures are not put in place, the impacts of poor waste and effluent management will continue to be manifested even after the construction phase.
Scale	Medium	The scale of this impact refers to the amount of waste that is likely to be generated.
Frequency	Daily	Wastes will be generated daily throughout the construction phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Any poor waste management practices will be of a major concern in the Project Area.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

9.0.5.4 Mitigation/Management Measures

- Spoil generated should be disposed of on pre-identified and approved locations (impact assessment should be completed for the locations if not already approved).
- A Waste Management Plan (WMP) will be produced for the construction phase:
  - following the principles of:
    - waste minimisation at source,
    - segregation for reuse,
    - recycling, and
    - safe disposal of waste through a government-approved waste contractor.
  - With detailed measures stipulated such as:
    - using waste minimisation techniques.
    - allocating responsibilities for waste management.
    - identifying all sources of waste.
    - ensuring wastes are handled by personnel licensed to do so especially in the case of hazardous waste.
    - making suitable facilities available for the collection, segregation and safe disposal of the waste, also ensuring wastes are not blown off site by wind contributing to wind-blown litter in the area;

- creating waste collection areas with clearly marked facilities such as colour coded bins and equipment for handling the various waste types; and
- The collection of wastes that cannot be reused or recycled to be collected by approved waste contractors and transferred to an appropriate waste management facility for treatment and ultimate disposal (RURA-licensed).

- Construction vehicles and equipment will be serviced off site at designated and approved servicing locations.
- The use, storage, transport and disposal of hazardous materials used for the Project will be carried out in accordance with all applicable Rwandan regulations (including the RURA Regulations governing the provision of services for hazardous waste management), and Material Safety Data Sheets (MSDS). Any hazardous wastes to be disposed of should be documented beforehand, treated as per any requirements of the MSDS sheets, and disposed of in consultation with the District Authorities and via RURA-approved waste handlers.
- For wastes including general wastes, packaging, oils and lubricants, it is likely that the Project will use the existing licensed waste disposal firms that service KSEZ. A waste sorting area is included in the facility design. Occasional audits to monitor company performance should be undertaken by the Project Proponent.
- The Contractor will be required to supply the required temporary ablution facilities and be responsible for the treatment and/or removal of sewage wastes off site. The Contractor will also be required to ensure that any sub-contracting company is accredited and has the necessary permits to remove transport and dispose of waste.
- All construction laydown areas shall comply with the WMP and be provided with appropriate waste handling equipment by either project proponent for onsite waste or locally licensed subcontractor for off-site waste management.
- Any generated hazardous waste should be transported and managed by RURA-permitted hazardous waste handlers.

9.0.5.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact of waste and effluent management will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will only be manifested within the Project Area.
Duration	Short term	With application of appropriate waste and effluent management measures, the impact of waste and effluent management will cease to manifest shortly after the construction phase.
ARCScale	Low	The scale of this impact refers to the amount of waste that is likely to be generated. With the application of appropriate waste management measure including the application of the waste management hierarchy, less waste will be generated.
Frequency	Daily	Wastes will be generated daily throughout the construction phase.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact		

9.0.6 Impacts on Employment, Procurement and the Economy

9.0.6.0 Description of the Baseline Environment

The KSEZ is already an operating industrial zone. The neighbouring community (Kanombe and Bumbogo villages) have benefited from employment in the KSEZ including construction training as well as works at other industries in the surrounding areas. Therefore, there is availability of labour in the Project Area, particularly in the categories of unskilled and semi-skilled labour. Contractors should employ within the local and surrounding communities as a priority.

Additionally, various materials for construction can be sourced from the Project's surrounding areas, further benefiting the local economy.

9.0.6.1 Proposed Project Activities

The Project will create both direct and indirect employment opportunities across different skills levels (unskilled, semi-skilled). According to the current estimates, the construction workforce will vary at different times during construction but will have a peak on site of approximately 250 people during the superstructure construction.

Impacts from the Project include:

- Direct employment opportunities.
- Indirect employment generated by the procurement of construction materials, and other goods and services for the Project.
- Induced employment related to jobs ensuing from the expenditure of incomes associated with direct and indirect Project related jobs.

9.0.6.2 Sensitive Receptors

The inhabitants of communities around KSEZ will be able to benefit from direct and indirect employment opportunities and the supply of the required goods and services.

9.0.6.3 Impact Summary (Pre-enhancement)

Type of Impact
Positive Impact
Direct and indirect employment opportunities and the procurement of construction materials, goods and services, and combined multiplier effect of this economic growth will result in increased incomes for successful candidates and their local communities; promoting some degree of an increase in standards of living.

9.0.6.4 Enhancement/ Management Measures

In order to enhance this positive impact, the following management measures will be implemented:

- The contractor will prioritise the recruitment of workers (unskilled, semi-skilled) from the local communities around KSEZ where available through CSRL's development and implementation of a Local Content Policy.
- The contractor will prevent any form of nepotism and favouritism as required by an Equal Opportunities and Diversity Policy to be developed and implemented by CSRL.
- The Project Manager will notify identified representatives of the District Government and Local Administration (i.e. village leaders) of the specific jobs and the skills required for the Project, during the recruitment process at both construction and operation phases.
- Advertisements on the employment and procurement opportunities during the construction phase will be placed at the village leader's official notice board, and applications are to be

done through this office. In the event that the position cannot be filled from within the Project Area, it will be advertised further district-wide then nationally.

- No recruitment will take place at the entrance gates of the facility.
- The Contractor will aim at procuring locally available materials where feasible and use local suppliers where appropriate.

9.0.7 Impact on Disease Transmission

9.0.7.0 Description of the Baseline Environment

The District Health Profile shows that HIV prevalence is at 5.9% (7.4% in female and 4.4 % in male) for the population aged between 15-49 years. This prevalence is higher than the national average which is 3.6% for female and 2.2% for male of the same age group.

Malaria and dengue fever are significant health concerns in Gasabo District, Rwanda, with varying prevalence rates across the area. According to the Rwanda Malaria Indicator Survey 2020, Gasabo District is one of the most endemic areas for malaria in Rwanda, with an incidence rate of 334 cases per 1,000 population. This district has been identified as a high-risk area for malaria transmission due to its high population density, proximity to marshlands, and poor housing conditions. Significant progress has been made in reducing the burden of malaria in Gasabo District, with the district achieving a 49% reduction in malaria incidence between 2015 and 2019.

On the other hand, dengue fever is a relatively new concern in Gasabo District, with sporadic cases and small outbreaks reported since the first confirmed outbreak in Rwanda in 2019. According to the Rwanda Biomedical Centre, in 2020, Gasabo District reported 52 cases of dengue fever. The overall prevalence of dengue fever in Gasabo District remains relatively low compared to other areas in Rwanda. However, the district remains at risk of future outbreaks, particularly during the rainy season when mosquito populations are higher.

Additionally, Gasabo District in which the Project Site is located has a big challenge of inadequate doctors, nurses, and midwives.

9.0.7.1 Proposed Project Activities

The main health risk at the moment is increases in disease prevalence related to direct interactions with the workforce, absence of adequate sanitation could contribute to an increased incidence of infectious disease, in particular, water borne diseases. Standing water created during construction activities could also serve as breeding grounds for mosquitoes, spreading malarial and dengue risk within the area. Construction activities including increased traffic may result in increased dust levels, which have the potential to exacerbate respiratory illnesses.

In the event of water stagnation at the project site as a result of earthworks including excavations, this will provide breeding grounds for various vectors and pose a risk of increased vector borne diseases such as malaria.

Given the location of the proposed project area within the vicinity of the already highly industrialised and urbanised CoK, the low number of construction workers that will be needed, the fact that majority of the construction workers will be locally recruited hence minimising the risk of labour influx, and the fact that the Project Area is located within an industrial park where a number of other industrial projects have been already developed, with more to be developed. The risk of increased spread of communicable and sexually transmitted diseases (STDs) including HIV/AIDS attributable to the Project will be negligible. As construction workers will be mainly based in the urban areas as opposed to induced labour influx outside of Kigali which increase the risk of disease prevalence.

Additionally, COVID-19 is a minor health risk, given the significantly reduced prevalence globally, it is important to have ensure that the risk is managed in accordance to its severity.

9.0.7.2 Sensitive Receptors

The receptors of increased disease transmission will be the neighbouring community of the KSEZ as well as Project workers (casual contractors and permanent employees).

9.0.7.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on disease transmission during the construction phase will be "**Minor Negative**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project Area.
Duration	Short-term	The impacts identified are expected to be linked to the construction period and therefore short-term.
Scale	Medium	Any increase in disease transmission will result in negative impacts to the health system.
Frequency	Intermittent	The incidence of communicable diseases is likely to recur in the absence of mitigation and monitoring measures.
Magnitude		
Small Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium Sensitivity		
Vulnerability of receptors is dictated by the local people not having access to sexual health and family planning services, the current prevalence of disease, the health status of receptors as well as the limited access to health care.		
Significant Rating Before Mitigation		
Minor Negative		

9.0.7.4 Mitigation/Management Measures

- The Contractor will prepare a COVID-19 response and management plan based on a risk assessment considering international guidance, e.g. from the WHO, and in accordance with Rwandan regulatory requirements. This will be for both the construction and operations phases.
- Workers during construction and operation should receive as part of their induction, and then on an annual basis, awareness training on potential high risk communicable and vector borne diseases, symptoms, preventative measures and transmission routes as well as treatment options. This will be particularly important for diseases with which non-local workers are unfamiliar and in case of any emerging disease outbreaks.
- In the event of a new disease, increased transmission or outbreak compared to the baseline, the Contractor should interact with local health care facilities and workers to ensure there is an appropriate response in place to make workers aware and to ensure proper precautionary measures are implemented.
- The Contractor will manage worker-worker interactions, worker-community interactions and development of personal relationships with members of the local communities by adhering to a Supplier Code of Conduct to be developed and implemented by CSRL.
- The following will be implemented at a minimum in order to minimise disease transmission:

- Providing workers with appropriate sanitary facilities, which are appropriately designed to prevent contamination.
- Developing a robust waste handling system to avoid the creation of new vector breeding grounds or attracting rodents to the area.
- Implementing measures to reduce the presence of standing water onsite through environmental controls and source reduction to avoid the creation of new breeding grounds.
- Ensuring appropriate food preparation and monitoring measures are in place.

- The workforce will be provided with access to selected treatment at health facilities at or near the Project Site as deemed necessary for this Project. The requirements for these health facilities should be based on a risk assessment considering access to existing health facilities and travel time to facilities that offer international standards of care. Access to health care should include direct employees, and sub-contractors working on site.
- The Project should prepare and implement a Communicable Disease Management Plan during the construction phase. This plan should be explained clearly to the workforce.
- No recruitment is permitted on the construction site. This will serve to prevent in migration of work seekers from outside the local area.

9.0.7.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact on disease transmission will be a "**Negligible Negative**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will be limited to the Project Area.
Duration	Low	With the implementation of the mitigation measures, community and worker exposure to diseases attributed to the Project will be avoided or effectively controlled within a short period of time.
Scale	Low	With the implementation of the mitigation measures, the increase in disease prevalence attributable to the Project will be avoided.
Frequency	Rare	The incidence of communicable diseases and other diseases attributable to the Project will be avoided or only occur rarely.
Magnitude		
Negligible Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact		

9.0.8 Traffic Impacts

9.0.8.0 Description of the Baseline Environment

The KSEZ, Project Area, is accessed via the asphalt Kigali-Kayonza national road. It is connected to Kigali international airport 4 km away by an asphalt road just and to Kigali City Centre 12 km away by asphalt road. Existing traffic along these roads is regulated as per Law N°55/2011 of 14/12/2011 Governing Roads in Rwanda.

Within KSEZ, the management, PEZ, has constructed a network of access roads and currently has very light traffic, mainly limited to operations within the developing KSEZ.

9.0.8.1 Proposed Project Activities

During the construction phase, various trucks will be expected to deliver materials such as cement, sand and gravel as well as warehouse super structures, internal structures and electro-mechanical components. These trucks will be using the available local and wider road network and regulated as per Law N°55/2011 of 14/12/2011 Governing Roads in Rwanda. Although the existing road network is open to traffic and will thus be serving its purpose, increased traffic due to transportation of the required Project materials and equipment has a potential of slowing down road traffic along the routes that will be used.

The risk of injuries from road traffic accidents are generally low but may increase during civil construction work (including site mobilisation and demobilisation) associated with the movement of equipment and people by road. However; given that there are no settlements within KSEZ, human presence within the KSEZ will largely comprise of workers at the different projects within the KSEZ.

The increase in traffic could also create dust, noise[12] and safety (including injury or even death due to accidents) impacts for other road users and people living or working within close proximity to the roads on the selected transport routes. Traffic impacts will be further exacerbated if the selected equipment and/or delivery routes are through neighbouring areas which are highly populated and active.

9.0.8.2 Sensitive Receptors

The receptors for traffic impacts will be the existing users of the roads that will also be used during the transportation of Project equipment, machinery and workers.

9.0.8.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, traffic impacts during the construction phase will be "**Moderate Negative**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	To a great extent, traffic impacts will be limited to the Project Area and its environs; however, it is understood that some of the required Project components such as electrical and mechanical equipment will be imported from overseas. Increased traffic attributed to transportation of Project equipment along major in-country highways will be negligible since such highways are already approved and continuously used for transportation of large volumes of goods in addition to general transport services.
Duration	Short term	This impact will cease to be manifested after the completion of the construction phase.
Scale	Medium	Given the highly urbanised and industrial nature of the Project Area, a large number of people will be potentially affected; however, they are already generally used to urban traffic and this will also be largely dependent on the selected transportation routes.
Frequency	Continuous	This impact will be continuously felt throughout the construction phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		

(12) Impacts of dust and noise are assessed separately in Sections 9.0.0 (Impacts on Local Air Quality) and 9.0.1 (Impacts on the Noise Environment and Vibrations).

Medium Sensitivity
Traffic impacts will inconvenience the current road users and businesses along them.
Significant Rating Before Mitigation
Moderate Negative Impact

9.0.8.4 Mitigation/Management Measures

- In consultation with the Rwanda Transport Development Agency (RTDA) and the management of KSEZ, develop and implement a TMP covering the routes to be used by the contractor vehicles, vehicle safety, speed limits on roads, minimum driver qualifications and experience, driver and passenger behaviour, use of drugs and alcohol, hours of operation, rest periods and location of rest stops, and accident reporting and investigations.
- Prepare and implement an appropriate community Grievance Redress Mechanism (GRM). The GRM should be communicated to all the local community members and neighbours around the KSEZ.
- As much as possible, avoid transportation of Project equipment and materials through busy trading centres, schools, and towns by using by-passes as appropriate.
- Regularly maintain Project vehicles and equipment as per the manufacturers' recommendations.

9.0.8.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of traffic impacts will be a "**Minor Negative**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	To a great extent, traffic impacts will be limited to the Project Area and its environs; however, it is understood that some of the required Project components such as electrical and mechanical equipment will be imported from overseas. Increased traffic attributed to transportation of Project equipment along major in-country highways will be negligible since such highways are already approved and continuously used for transportation of large volumes of goods in addition to general transport services.
Duration	Short term	This impact will cease to be manifested after the completion of the construction phase.
Scale	Low	With the implementation of the mitigation measures, the number of affected persons will be low.
Frequency	Regular	With the scheduling of the Project Activities, noticeable traffic impacts will occur regularly; only during scheduled transportation of Project materials and equipment.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact		

9.0.9 Labour and Working Conditions (Including Occupational Health and Safety)

9.0.9.0 Description of the Baseline Environment

Labour and working conditions, including occupational health and safety, will need to be considered to avoid any occupational incidents and/or injuries. Issues that need to be considered include fair treatment of workers, non-discrimination, and freedom of association, equal opportunities, as well as the provision of a safe and healthy working environment. These issues should be considered not only for those employed directly by the Proponent, but also employees of the Contractor and any other sub-contractors during the construction phase.

9.0.9.1 Proposed Project Activities

OHS risks during the construction phase will include:

- Movement of vehicles both internally and externally[13];
- Use / operation of mobile and immobile construction equipment;
- Working at heights; and
- Ergonomic risks related to lifting of heavy loads.

Risks related to labour include human rights violations associated with unfair working conditions, including: discrimination, unfair treatment, prevention of freedom of association, use of child/forced labour, poor housing conditions and poor working conditions (i.e. provision of breaks, access to sanitary facilities, working hours, terms of payment lack of contracts in place etc.).

9.0.9.2 Sensitive Receptors

General

Sensitive receptors will be Project employees. Given the industrial nature of the Project Area, and the fact that some of these workers will have previously worked at already completed projects in the KSEZ as well as in the neighbouring areas, these workers will at least have a fair understanding of general construction conditions and common construction related OHS risks and how they can be minimised. This will be reinforced through mitigation measures to be carried out the by site manager and/or contractor.

Labour and working conditions, including occupational health and safety, will need to be considered to avoid any occupational incidents and/or injuries. Issues that need to be considered include: fair treatment of workers, non-discrimination, equal opportunities, as well as the provision of a safe and healthy working environment. These issues should be considered not only for those employed directly by the Proponent, but also employees of the Contractor and any other sub-contractors during the construction phase.

Without careful OHS management, the workforce employed may be exposed to occupational health and safety risks, potentially resulting in occupational accidents and injury or death.

Labour laws in Rwanda are aligned with international labour laws, and Rwanda has ratified all eight of the fundamental ILO conventions, including:

- Forced Labour Convention, 1930 (No 29);
- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87);
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98);
- Equal Remuneration Convention, 1951 (No 100);

13 Traffic impacts are assessed separately in Section 9.1.6.

- Abolition of Forced Labour Convention, 1957 (Mo 105);
- Discrimination (Employment and Occupation) Convention, 1958 (No 111);
- Minimum Age Convention, 1973 (No 138); and
- Worst Forms of Child Labour Convention, 1999 (No 182).

Casual Workers

There will be use of casual workers during the construction phase who will likely be engaged in labour intensive activities. It is crucial that OHS related risks are considered and managed, this will also include sensitisation of workers. In particular, casual workers are generally unskilled, have limited information regarding the labour and human rights, can be engaged at an irregular basis (depending on availability of work tasks where they are needed), low-income earners who can easily be tempted to expose themselves to significant occupational risks including excessive working hours with the hope of earning money as well as a poor safety culture.

It is important to note that while the labour laws exist, there are issues with regards to their implementation. There is a potential that the contractor and sub-contractors will not operate in line with international best practice if measures to manage such risks are not enforced.

With regards to on-site worker welfare, the Contractor will be required to adhere to IFC PS 2: Labour and Working Conditions, Rwandan Labour Law No. 66/2018 and the ratified ILO conventions.

9.0.9.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts to exposure of the workforce to poor labour and working conditions will be a "**Moderate Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impact is only relevant for the workforce (including direct, third party and supply chain workers) all of whom are at a local level (although a few of them (mainly for specialised skills) may come from elsewhere in Rwanda or globally).
Duration	Short term	Generally, the implications of inadequate labour and working conditions will cease to manifest after the construction phase; however, some of the effects such as major injuries will continue to affect the concerned individuals.
Scale	Large	This impact will affect a proportion of the 250 workers estimated to be employed at the Project during the peak of the construction phase. Some of the emanating impacts such as major injuries can be severe including loss of life which can significantly affect households and communities ability to maintain their quality of life and livelihoods.
Frequency	Intermittent	Impact is likely to recur / occur intermittently throughout the construction phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium Sensitivity		
Receptors to this impact will include those contracted or subcontracted to work on the Project. The Project workers will be highly sensitive to any inadequate labour and working conditions if this happens at the Project.		
Significant Rating Before Mitigation		

Moderate Negative Impact

9.0.9.4 Mitigation/Management Measures

Management System

- The contractor should develop and implement an OHS Management System in line with good industry practice, including the requirements of the IFC PS 2, and in accordance with the Labour Code of Rwanda and the Labour law No. 66/2018. This OHS system will need to consider hazard identification, risk assessment and control, use of PPE, incident investigation and reporting, reporting, and tracking of near misses, incidents etc. The management system will also include emergency response plans that tie in with existing emergency response procedures of the KSEZ. Roles and responsibilities for the implementation of the OH&S Plan should be clearly defined.
- The contractor will have a HR Policy in place that adheres to the requirements of the IFC PS 2, Rwanda labour law and the ILO Conventions ratified and in-force in Rwanda, to which Rwanda is a signatory. The HR policy will include a Labour and Employment Plan, conditions of employment and Worker Grievance Mechanism. These requirements will also be passed on to any sub-contractors. Key aspects of the HR policy which should be included, are the following:
    - Provision of clear and understandable information regarding rights under national labour and employment law, and any applicable collective agreements, including those related to hours of work, wages, overtime, compensation, etc.;
    - Provision of reasonable working conditions and terms of employment;
    - Provision of employment, compensation/remuneration and working conditions, including working hours, based on equal opportunity and fair treatment, avoiding discrimination on any aspects;
    - Provision of adequate welfare facilities on site;
    - Implementation of a grievance mechanism;
    - Adoption and implementation of a sexual harassment policy; and
    - Adoption of an open attitude towards freedom of association.

Contractor Management

- In all contracts, explicit reference should be made to the need to abide by Rwandan labour law, international standards (in particular IFC PS 2), ratified ILO conventions and the Proponent's policies in relation to health and safety, labour and welfare standards.
- As part of the contractor and supplier selection process, CSRL will take into consideration performance with regard to worker management, worker rights, and health and safety as outlined in Rwandan labour law and international standards.
- Regular checks should be undertaken to ensure the relevant labour laws and occupational health and safety plans are adhered to at all times.
- All workers (including those of contractors and subcontractors) should, as part of their induction, receive training on health and safety guidelines (including awareness-raising of disease vectors) and should receive updated training routinely, as well as when undertaking new tasks, such as working at heights or working in confined spaces.
- The development and implementation of vector borne and communicable disease policies and information documents for all workers directly related to the project.

- The information document will address factual health issues as well as behaviour change issues around the transmission and infection of vector borne and communicable diseases (including HIV/AIDS as well as malaria).

- Daily toolbox talks will be held with the Project workers to discuss the health and safety risks associated with the tasks at hand.
- A 'fitness for work' programme should be established to ensure that all employees are physically able to undertake their work without impact to their health;
- An occupational health and safety monitoring and surveillance programme should be established;
- Specific OHS training programmes should be provided for workers assigned to tasks associated with particular H&S risks;
- The provision and enforcement of use of appropriate PPE based on task based hazard analysis;
- Visual warning signs should be put in place, including those for the electrical and mechanical equipment safety warnings, and chemical hazard warnings;
- Working hours should be regulated in accordance with national legislation and international guidelines.

Workers' Rights

- The Contractor should put in place hiring mechanisms to ensure no employee or job applicant is discriminated against on the basis of his or her gender, marital status, nationality, ethnicity, age, health status, religion or sexual orientation.
- All workers (including those of the contractor and subcontractors) will, as part of their induction, receive training on worker rights in line with Rwandan legislation to ensure that positive benefits around understanding labour rights are enhanced. This process will be formalised within the Code of Conduct that will be provided by the contractor.
- All workers (including those of the contractor and subcontractors) will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work.
- The contractor will put in place a worker grievance mechanism that will be accessible to all workers, whether permanent or temporary, or directly or indirectly employed. The worker grievance mechanism shall be open to all the Project workers in the event that their grievance is not adequately resolved by their direct employer. Workers will also have access to CSRL's grievance management system, to raise any issues with their employer.
- All workers (including those of the contractor and subcontractors) will have access to training on communicable diseases and STDs and community interactions in general. This training will be developed in collaboration with local health institutions.
- Surveillance and assurance that no children or forced labour is employed directly by the contractor, and to the extent possible by third parties related to the Project and primary suppliers where any such risk may exist.
- Mitigation measures related to human rights violation are presented below:
  - Labour rights in the supply chain and contractors - The risk of non-observance of labour laws (including freedom of association, health and safety, non-discrimination, regular payment of wages, working hours, overtime, rest or leave by construction contractors and/or suppliers of materials or services) can be mitigated by:

- The screening of contractors and suppliers on the basis of whether they are able to comply with the Project's commitments and policies.
- Monitoring and evaluation visits to contractors and suppliers to verify compliance with company policies
- Formal induction on company policies for all appointed contractors and supplier sensitisation programme
- Implementation of a worker grievance system

Specific measures for the management of casual workers

- Workers shall receive regular and recorded Health & Safety training, and such training shall be repeated for new or reassigned workers. This is particularly important for casual workers since their recruitment will generally be irregular depending on availability of tasks where they are needed, and their tasks will also vary from time to time as the construction process progresses.
- All workers shall be provided with written and understandable information about their employment conditions including expected working hours, wages and health and safety requirements before they enter employment, even if they are to be engaged for a few days.
- Wages and benefits paid for a standard working day for casual workers shall as a minimum be pro-rated minimum monthly living wage. For instance, the average living wage for Kigali ranges from RWF103000 to RWF137100 per month (https://wageindicator.org/salary/living-wage/archive-no-index/rwanda-living-wage-series-september-2019).
- The same laws regarding rest days, working hours and overtime shall apply to casual workers as contracted workers per Rwandan labour laws.
- In the event of a work accident resulting in (i) permanent incapacity (ii) temporary incapacity or (iii) fatal injury leading to death of a casual worker, medical insurance and compensation shall be provided for their treatment, and wages based on average monthly earnings shall paid per Rwandan labour law as would apply to a contracted worker.
- Where the services of a casual worker are required for more than a period of one month (continuous) or is required to perform work which cannot reasonably be expected to be completed within a period, or a number of working days amounting in the aggregate to the equivalent of three months or more, such a worker shall be engaged as a contract worker in line with the requirements of the Rwanda Labour Law No. 66/2018.

9.0.9.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the residual impact related to exposure of the workforce to OHS risks will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impact is only relevant for the workforce (including direct, third party and supply chain workers) all of whom are at a local level (although for specialised skills, some workers may come from elsewhere in Rwanda or globally).
Duration	Long-term	The implications of poor health and safety practices can be severe including loss of life which can significantly affect households and communities ability to maintain their quality of life and livelihoods.
Scale	Very Small	With the implementation of the management measures, the number of Project workers exposed to OHS risks will be very small.

Frequency	Rare	With the implementation of the management measures, exposure of Project workers to OHS risks will be rare.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact[14]		

9.0.10 Community Health, Safety and Security Risks

9.0.10.0 Description of the Baseline Environment

The Project Site is located within the KSEZ, surrounded by other industrial plots most of which are already developed (Section 7.3). The nearest settlements are in Kanombe on a hillside across the SEZ and further North is Bumbogo closer to the phase 2 of KSEZ. These settlements are considerably far (approximately 0.5-1 km) from the Project Site.

Impacts may be brought about by the interaction of project workers (including contractors) with the communities in these settlements, outside of the Project site. The Project will also potentially have impacts on communities located around / who utilise the transport networks used by the construction workforce.

Community, health, safety and security will need to be considered to avoid any community related incidents and/or injuries. These issues should be considered not only for those employed directly by the Proponent, but also employees of the Contractor and any other sub-contractors during the construction phase.

9.0.10.1 Proposed Project Activities

The following Project activities, but not exclusively so, may result in risks to community health, safety, and security:

- The peak demand for temporary contract workforce by either the Proponent or the Construction Contractor for the duration of the construction phase.
- The storage, management and transport of any Project goods, materials, equipment, and waste (including general and hazardous waste) on any existing or new public roads or land, as well as the transport of such materials through local communities and towns. This includes the construction of Project infrastructure as well as the movement of vehicles and construction equipment through or near communities although this will be minimal given the size of the project.
- The Project's use of private security forces to secure their operations, and the level of interaction between these forces with local communities during (1) routine operations (2) emergency events, (3) conflicts, strikes or demonstrations.

The establishment of the Project could result in a broad range of community health, safety and security risks, and these risks cross through a range of technical expertise (i.e. occupational health and safety, air emissions, water pollution etc.) if not properly managed. Community health, safety and security is however an umbrella term, and the potential project risks may specifically include:

- Community exposure to noise and air emissions,
- Community exposure to ground and surface water pollution,
- Community exposure to general and hazardous waste storage and transport,

[14] Provision of OHS awareness training to the Project workers will reduce the sensitivity to Low thus resulting in a Negligible Negative residual impact.

- Community exposure to communicable and vector-borne diseases (including STDs).
- Public vehicle and pedestrian traffic on private and public roads,
- Community relations and conflict with private and state security personnel,
- Community incidents related to Project emergency events,
- General occupational health and safety and working conditions.
- Gender-based violence and harassment (GBVH)- Money circulation and community-workforce interactions may trigger cases of GBVH in the area. GBV includes sexual exploitation, abuse and harassment, including violence and harassment that is physical and/or psychological; and financial. GBVH can be perpetrated between workers and community members, whether the workers come from or reside in local communities or are visiting from other areas. Interactions can take place before, during or after work, for example, at break times or on daily commutes or through company-led processes, such as community engagement exercises. GBVH can be perpetrated by workers against community members, and vice versa.

In addition, the establishment of the Project may result in a range of indirect or induced risks to community health, safety, and security via:

- Increased pressure on existing public services and facilities related to worker use and labour influx;
- The use of violence, theft and improper behaviour by local people and workforce;
- Increased transactional sex and associated STDs risk; and
- Increased social pathologies associated with labour influx and Project workforce.

9.0.10.2 Sensitive Receptors

Sensitive receptors will be communities surrounding the Project and transport corridor.

9.0.10.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts to exposure of the community to poor community, health, safety and security standards will be a "**Minor Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project Area.
Duration	Short term	Generally, the implications of inadequate community health, safety and security conditions will cease to manifest after the construction phase; however, some of the effects such as major injuries will continue to affect the concerned individuals.
Scale	Large	Without any effective management, the potential for a major community incident and emergency events is more than likely.
Frequency	Intermittent	Impact is likely to recur / occur intermittently throughout the construction phase.
Magnitude		
Small Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		

Medium Sensitivity
Communities are vulnerable to health, safety, and security impacts. The potential for a community incident and emergency events, and impact on community health, is all but guaranteed when construction commences if there are no active management measures in place.
Significant Rating Before Mitigation
Minor Negative Impact

9.0.10.4 Mitigation/Management Measures

Contractor Management

- A Worker Code of Conduct should be developed for all project personnel that include guidelines on worker-worker interactions, worker-community interactions and development of personal relationships with members of the local communities. As part of the Worker Code of Conduct, all project personnel should be prohibited from engaging in illegal activities including any form of GBVH, the use of commercial sex workers and transactional sex. There should be a zero-tolerance for the sale, purchase or consumption of drugs and alcohol; as well as involvement in gambling and fighting. Anyone caught engaging in illegal activities will be subject to disciplinary proceedings. If workers are found to be in contravention of the Code of Conduct, which they will be required to sign at the commencement of their contract, they will face disciplinary procedures that could result in dismissal.
- The contractor should not allow creation of potential breeding places for vectors at the Project Site, such as stagnant water which are potential breeding places for mosquitoes.
- Ensure sufficient health services are available to meet the day to day needs of Project personnel without impacting on access to health care for communities. First aid training should be provided to Project personnel.
- Implement and disseminate information on the GRM. The GRM will provide a clear process for informing stakeholders of the process for reporting complaints about security personnel and addressing any such complaints in a timely manner.
- Specifically related to GBVH, the Project can take action and respond to reports of GBVH by integrating measures into existing systems. This can be done by:
    - strengthening leadership and company culture, so that GBVH risks are understood, clear and consistent messages are communicated, necessary partnerships are developed, inclusive organisational structures are developed, and adequate resources are invested, proportional to the size of the Project and workforce.
    - developing and communicating policies and codes of conduct that define GBVH, set out prevention and response measures and outline behaviours that are not tolerated, with clear links to sanctions and disciplinary procedures
    - strengthening recruitment and performance assessments so that they address GBVH risks and enable fair and transparent decision-making on hiring, promotions and performance-related pay
    - working with contractors and suppliers to address GBVH through procurement processes, contract selection and negotiation and regular engagement along the supply chain
    - improving the physical design of worksites and service delivery locations, with safety assessments to identify potential GBVH hotspots for workers, service users and community members.

Traffic-related Mitigations

Refer to Section 9.1.9.

Plans to develop

- Development of a Security Management Plan that will set out the process for recruitment and management of security personnel. This will include:
  - conducting background checks on security personnel to ensure that they have no records of human rights abuse;
  - provision of training on upholding community and employee rights and appropriate use of force; and
  - provisions for investigating any unlawful or abusive behaviour and appropriate disciplinary action, including potential termination of contract. Unlawful and abusive acts will be reported to the appropriate public authorities.
- Develop an Emergency Prevention, Preparedness and Response Plan (EPPRP) that considers incidents that could impact or involve the surrounding community.

9.0.10.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the residual impact related to exposure of the community to health, safety and security risks will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project Area.
Duration	Long-term	Generally, the implications of inadequate community health, safety and security conditions can be severe including loss of life which can significantly affect households and communities' ability to maintain their quality of life and livelihoods.
Scale	Very Small	With the implementation of the management measures, the number of community members exposed to community health, safety and security risks will be very small.
Frequency	Rare	With the implementation of the management measures, exposure of Project workers to community health, safety and security risks will be rare.
Magnitude		
Negligible Magnitude		
Significant Rating After Mitigation		
Negligible Negative Impact[15]		

9.1 Operations Related Impacts

9.1.0 Impacts on Local Air Quality

9.1.0.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.0.0.

[15] Provision of OHS awareness training to the Project workers will reduce the sensitivity to Low thus resulting in a Negligible Negative residual impact.

9.1.0.1 Proposed Project Activities

The main Project activities that will have an impact on local air quality during the operations phase are:

- Vehicular movements used by the operational staff and in the transportation of goods (to and from the Project Site); and
- Power backup generator (diesel). The Project Area has a stable supply of electricity from the national grid; therefore, outages are expected to be infrequent and short term.

Exhaust emissions from vehicular movements and power back-up generator are expected to include CO_2, NO_2, SO_2 and VOCs since most of them will be powered by diesel/ petrol engines.

9.1.0.2 Sensitive Receptors

The main sensitive receptors emissions during the operations phase will be the Project workers at the Project Site and other operators along the transportation routes. However, it is important to note that the transportation routes to be used are already existing and approved roads for road traffic. Given the many other road users (vehicles), additional impact attributed to the Proposed Project will be negligible.

9.1.0.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts on the local air quality during the operations phase will be "**Minor Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will be limited to the Project Site and along the transportation routes.
Duration	Long term	This impact will continue to be manifested through the operations phase.
Scale	Low	The air emissions generated will be within the limits permitted in the Rwanda Standards EAS 752:2010 Ambient air quality tolerance limits for dust and Rwanda Standards EAS 752:2010 for Emission limits.
Frequency	Intermittent	This impact will intermittently be manifested during transportation and use of the power back-up generator (during power outages).
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Low Sensitivity		
Given the industrial nature of the Project Area (KSEZ), the receptors are used to vehicular movements and operation of generators during power outages and are thus less sensitive to emissions from their normal operation.		
Significant Rating Before Mitigation		
Minor Negative Impact		

9.1.0.4 Mitigation/Management Measures

- Locate the generator as far as possible away from people, both employees and working areas of neighbouring plots.
- Ensure that the generator uses best available technology and is regularly maintained as per the manufacturer's instructions.

- Vehicles will not be permitted to idle whilst stationary.
- Implement applicable requirements of the TMP for the operations phase.

9.1.0.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact on the air quality will be a "**Negligible Negative Impact**" post mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will be limited to the Project Site and along the transportation routes.
Duration	Long term	This impact will continue to be manifested through the operations phase.
Scale	Very Low	The air emissions generated will be significantly below the limits permitted in the Rwanda Standards EAS 752:2010 Ambient air quality tolerance limits for dust and Rwanda Standards EAS 752:2010 for Emission limits.
Frequency	Intermittent	This impact will intermittently be manifested during transportation and use of the power back-up generator (during power outages).
Magnitude		
Small Magnitude		
Significant Rating Before Mitigation		
Negligible Negative Impact		

9.1.1 Climate Change Impacts (GHG Emissions)

9.1.1.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.0.0.

9.1.1.1 Overview and Methodology

The methodology used in this Section is in line with IFC PS3 (IFC, 2012), which requires that where a project is expected to or currently produces more than 25,000 tonnes of carbon dioxide equivalent annually (t CO_{2e} p.a.), GHG emissions are quantified 'in accordance with internationally recognised methodologies and good practice'. Whilst the Project will not reach this threshold, a GHG screening calculation has been undertaken since the facility is a relatively high energy user and there are emissions associated with the logistics operation.

It is typical in an ESIA to assess the significance of impacts with reference to the magnitude of the impact and the sensitivity of the receptor as outlined in Chapter 3. GHG emissions are global in nature and, unlike other environmental impacts, it is difficult to link the emissions of a single project to a specific receptor.

Transboundary effects have not been considered within this assessment, as none of the topic study areas reach other countries. It is noted that unlike some other impacts, the nature of GHG emissions means that the ultimate receptor is the global climate system. Climate change resulting from GHG emissions will lead to social, environmental, and economic impacts felt globally, regardless of where the GHGs are emitted. While acknowledging this fact, the GHG contributions from this Project are not of a large enough scale to be considered significant at a national or international level or considered to place any commitments made with respect to international agreements at risk. Therefore, in line with the approach taken for other projects of this scale, transboundary effects have not been considered further in this assessment.

In addition, GHG emissions are closely related to economic growth. In international agreements such as the UNFCCC and the Kyoto Protocol, developing countries are given greater scope to increase their emissions. This is in contrast to developed countries which are expected to reduce their emissions to a greater extent, given that they are starting with greater per-capita emissions and have historically contributed a greater proportion of GHGs. Rwanda has signed the Paris Agreement and agreed to the global target of keeping global average temperatures well below 2°C.

There are currently no published guidelines for determining the significance of project GHG emissions in ESIAs. However, the Guidance Notes for IFC PS3 (IFC, 2012) suggest the following criteria for evaluating project GHG emissions, outlined in Table 9-1.

Table 9-1 IFC GHG Assessment Criteria

IFC Criteria	Comments
The Project's GHG emissions relative to the host country's total national emissions	This has been considered in comparison to national emissions
The project's GHG emissions performance relative to good international performance or host country's national average performance	This has been considered in comparison to national emissions
The annual trend of the project's GHG emissions performance over time	This has been considered in the operations impact assessment
Opportunities to further improve the project's GHG emissions performance	This has been considered in the discussion and mitigation measures.

Project GHG Emissions Sources

Table 9-2 outlines the most significant expected GHG emission sources for the Project and whether they are included or excluded in the assessment. In determining this, two factors were considered:

- Whether they will contribute in excess of 5% of the Project's annual direct emissions;
- Whether they are third party associated GHG emissions (and thus double counting if included) or impossible to quantify.

Table 9-2 The most significant expected GHG emissions sources for the Project

Emissions Source	Quantified	Rationale for Exclusion
Embodied GHG emissions in the facility materials	No	Based on the ERM's experience of other infrastructure projects, a project of this type and size will not result in significant GHG emissions, especially when considered over the lifetime of the facility. They will be well below 5% of annual emissions when considered over the life of the Project.
Biogenic land use change	No	The plot is modified and not of a sufficient size for this to be material. They will be well below 5% of the Project's annual GHG emissions.
Fugitive emissions from refrigerant leakage	No	Ammonia is the most likely refrigerant technology and has a GWP of 0. Further, these emissions are not of sufficient magnitude even if CO_2 or other natural gas is chosen due to their low GWP of 1. If CO_2 of another natural based gas is used, they will be below 5% of the Project's annual GHG emissions.

Emissions Source	Quantified	Rationale for Exclusion
GHG emissions due to onsite energy consumption	Yes	N/A
GHG emissions from directly operated logistics operation (truck movements)	Yes	N/A
GHG Emissions from solid waste generated	No	At this stage it is not possible to quantify the level of waste generated by the facility. Waste streams will mainly comprise of recyclable packaging materials from pallets received and food waste from fruit and vegetable processing. A licensed recycling facility will be used. The level of waste is unlikely to contribute 5% of annual GHG emissions.
GHG emissions from third parties (customer vehicles)	No	The facility in addition to their own operated logistics operation will receive goods directly from customer/their logistics partners. These are not quantifiable at this stage and under the control of those parties, thus not estimated due to double counting.
Indirect GHGs in the value chain	Partially	The Project will ultimately impact emissions in the value chain, for example decreasing GHGs from food waste and conversely increasing emissions associated with export of products. An estimate of GHGs avoided from food waste is outlined in the discussion.

Assumptions

At this stage in the Project development where detailed design has not been completed it is necessary to make some assumptions in order to estimate the GHG emissions from the activities outlined Table 9-2. The assumptions used to estimate GHG emissions from energy consumption and transport are outlined below.

The general approach that has been adopted is to use a reasonable worst-case scenario – that is to say based reality of what may occur should no GHG reduction strategies outside of the accepted design criteria outlined in the Project Description Chapter.

Energy supply and consumption

The Project will have a 1.5 MVA grid connection and based on a worst-case scenario of using full capacity 365 days of the year this equates to a consumption of 13,140 MWh. Using 80% of the available roof space (allowing for shading) a rooftop solar installation of approximately 2-3 MW can be installed. With a 20% efficiency rate (Monocrysalline panels) this equates to an output of approximately 2,628 MWh per annum, or 20% of the total facility energy requirements in the worst-case energy consumption scenario.

The grid at KSEZ is stable; therefore, the backup generator will only be used during grid outages for essential cooling requirements where the solar installation is not in operation. This has been assumed to be no more than the equivalent of 4 full days per annum using a conservative assessment (or 1% of the total time). The size of the generator will be approximately 1 MW to power essential components during these outages.

No battery storage has been assumed for the purposes of this assessment since this is still being determined as to whether it is both commercially and technically viable. If storage is included, the overall GHG footprint of the facility would be less than is presented in this assessment.

In considering the above, the energy split for the facility is 79% grid, 20% solar and 1% diesel backup generator.

Transport

The facility will primarily service the Kigali metropolitan area and the surrounds. The vehicle fleet will range from 3-tonne to 20-tonne longer haul trucks, the majority at the lower end. A total fleet of approximately 12 trucks at full capacity is expected. An average of a 6-tonne truck has been used as representative of the fleet make-up for the purposes of this assessment.

The facility is located some 12 km from CoK – therefore a return trip into Kigali will be approximately 24 km. Longer haul trips will range anywhere from 50 km up to 300 km but are less frequent in number. Therefore, a return trip of 150 km has been used in this assessment as the estimate for average trip length and all vehicles are assumed to be diesel fuelled for a worst-case scenario assessment. The full fleet is assumed to run daily at maximum capacity (i.e. 100% of truck capacity).

The fleet will use a self-contained diesel-powered vapour compression system which utilised between 1-5 litres of diesel per hour depending on the size and temperature of the truck[16] 3 litres per hour have been used in this assessment considering the size of the truck and it is assumed the truck can cover a distance of 20 km per hour (allowing for traffic in the CoK). Therefore, each truck's daily fuel consumption is 22.5 litres.

GHG Emissions Estimation

Table 9-3 outlines the GHG emissions estimation for the Project based on the assumptions presented. The emissions factors used are detailed below.

Table 9-3 Project annual GHG Emissions Estimation

Source	Unit	Value	Emission Factor	t CO_{2e} p.a.
Grid supplied energy	MWh	10,512	0.461 g CO_{2e}/KWh	4,846
Roof-top solar	MWh	2,628	0	0
Diesel generator	Litres	19,200[17]	2.67 kg CO_{2e}/litre	51
30 6-tonne trucks 150 km trip every day (diesel)	Km	1,642,500	0.52563 kg CO_{2e}/km	864
Truck refrigeration unit	Litres	246,275	2.67 kg CO_{2e}/litre	658
Total				**6,041**

Emission Factors

- Grid supplied energy: the combined margin grid emission factor for Rwanda as presented in the EIB Carbon Footprint Methodologies p.33 (July 2020). Available at: https://www.eib.org/attachments/strategies/eib_project_carbon_footprint_methodologies_en.pdf
- Rooftop solar: build margin factors as presented in the EIB Carbon Footprint Methodologies p.35.
- Diesel generator: liquid fossil fuels emission factors as presented in the EIB Carbon Footprint Methodologies p.26
- Trucks: UK GHG Conversion Factors for Company Reporting (2020) by the Department for Business, Energy and Industrial Strategy. Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020

[16] Food Transportation Refrigeration, Tassou et Al, available at : https://www.grimsby.ac.uk/documents/defra/trns-refrigeenergy.pdf

[17] A 1 KVA generator running 100% capacity for 96 hours (4 days) using 200 litres of diesel per hour

- Truck refrigeration unit: liquid fossil fuels emission factors as presented in the EIB Carbon Footprint Methodologies p.26 (on the basis of fuel consumption outlined in the Assumptions Section.

9.1.1.2 Impact Assessment

Comparing the estimated direct GHG emissions from the operation of the Project of 6,041 t CO_{2e} p.a. to the IFC threshold of 25,000 t CO_{2e}/annum for which a detailed carbon footprint is required, it is very clear that that the Project's GHG emissions are significantly below this (approximately 15%). The most significant GHG emissions have been captured and therefore even allowing for a 20% margin of error and including all other smaller GHG contributors (embodied emissions, construction plant etc) the Project will remain significantly below this threshold.

In line with the methodology, Table 9-4 presents the impact assessment using the IFC's recommended criteria. The conclusion of the assessment is that the Project's direct emissions in the context of Rwanda's annual GHG emissions is negligible. This assessment does not include avoided emissions from food waste, an overview of which is outlined in the discussion. It is very likely that the Project's overall contribution to GHG emissions when this is included will be beneficial.

Table 9-4 GHG Impact Assessment vs. IFC Criteria

IFC Criteria	Assessment
The Project's GHG emissions relative to the host country's total national emissions	According to climatelinks.org (a knowledge portal for USAID staff), Rwanda's GHG emissions for the year 2014 were 7.59 Mt CO_{2e}. The Project's emissions represent approximately 0.0008% of this total. Rwanda's GHG emissions in 2014 were primarily from activities in the agriculture sector (39.5%), followed by waste (24.7%), and energy (23.1%). Land-use change and forestry (LUCF) and industrial processes contributed 11.4% (net) and 1.4% of total emissions, respectively. On a positive note, improved cold storage facilities like this Project will reduce emissions from food waste.
The project's GHG emissions performance relative to good international performance or host country's national average performance	The Project's GHG performance will be favourable compared to the national average performance in the cold chains sector since existing businesses use outdated refrigeration technology with much higher GHG emissions and have not been designed to a green building certification for energy and water efficiency. The Project is utilising best available technology for refrigeration and transport, therefore GHG emissions will be favourable compared to the industry.
The annual trend of the project's GHG emissions performance over time	As outlined in this assessment, the largest contributor of GHGs is the energy consumption of the facility. Rwanda's national grid over time will decarbonise further reducing the associated Project GHGs and KSEZ will be providing renewable energy solutions of its own to tenants in the future. Therefore, the GHG performance (even considering loss of insultation efficiency in refrigeration) is likely to improve over time.
Opportunities to further improve the project's GHG emissions performance	See discussion and mitigation measures outlined in the ensuing sections.

Discussion

The impact assessment has looked at direct GHG emissions related to the Project's operation on the basis of a reasonable worst-case scenario. As such, it is likely that GHG emissions will be lower than this considering:

- Facility energy consumption is estimated at full capacity and on the full grid connection power rating. The sizing of the connection has been made on the basis that it can handle above the estimated full load – as such these emissions are over-stated. In addition, it is expected the facility will not reach full operational capacity until year 3 or 4.
- Energy demand for the facility is the single highest contributor of Project GHGs (70%) of which the majority is driven by the carbon intensity of Rwanda's grid. As older power plants are replaced with renewable energy plants over the next 5-20 years, the carbon intensity of the grid (already relatively low) will reduce significantly – therefore over the lifetime of the Project, direct GHG emissions are expected to fall significantly as well.
- The Project, on the basis of it being commercially and technically feasible, will use battery storage thereby increasing the renewable energy contribution. This has not been considered in this assessment.
- The trucks have all been assumed to be diesel fuelled. Whilst this will most likely hold true for the long-hauliers, electric vehicles (EVs) may pose an attractive option commercially for smaller trucks/vans servicing the Rwanda metropolitan area. This is dependent on the availability in-country and maintenance needs as outlined in the Analysis of Alternatives Chapter.

In addition to the direct emissions which have been quantified, the Project will also impact indirect emissions in the value chain - most notably in reducing the GHGs associated with food loss. Food loss creates methane during the putrefaction process – a gas with a GWP of 25. BIO Intelligence Service undertook a research report for the Global Food Cold Chain Council (GFCCC) with support from United Technologies (UTC), to assess the potential of the cold chain sector to reduce GHG emissions through food loss and waste reduction. The report found:

- The global carbon footprint alone of food produced and not eaten is estimated to be 3.3 Gtonnes of CO_{2e} – in other words, food loss and waste would rank as the third top GHG emitter after USA and China, if it were a country
- In all scenarios modelled, the decrease of food loss and waste (FLW) carbon footprint from cold chain expansion clearly outbalances the newly created emissions, by a factor ten approximately

Using the facility capacity of approximately 10,000 pallets, of which 64% as a conservative estimate will be used for perishable goods, this equates to 7,680 tonnes turnover a week (6,400 pallets at 1.2 tonnes per pallet). As such, equating this to a like for like food loss reduction over the year would result in 400,000 tonnes of food loss avoided through the implementation of this facility.

GHG emissions from food loss or waste depends heavily on the available treatment type (if any) and also the stage at which the food is lost (production, post-harvest losses, and consumer). For the purposes of this assessment, it is assumed that food waste is disposed of in unmanaged shallow landfill which is the most likely scenario.

Methane emissions from food loss are calculated using the IPCC 1996 Default Methodology Tier 1, as follows: CH_4 (t/y) = [MSWT x L0 - R] x [1 - OX]

1. Annualised mass of MSW to be deposited, MSWT (t/y)
2. L0 = methane generation potential
3. R = mass of methane recovered for energy use or flaring
4. OX = Fraction of CH4 released that is oxidised below surface within the site, OX. Default is OX = 0.1 for well-managed sites, otherwise 0.

Therefore:

CH_4 (t/y) = [400,000 x 0.02 - 0] x [1-0] = 8,000

Using a methane to CO_2 conversion factor of 25 this equates to 200,000 t CO_{2e} p.a. avoided from food loss, or otherwise expressed approximately 33 times the direct emissions from the Project. Whilst this is undoubtedly a crude method and likely to be overstated, it is sufficiently demonstrating that the Project will positively contribute towards GHG reductions associated with food losses.

Climate Change Risks to the Project (Physical)

Acute physical risks refer to those that are event-driven, including increased severity of extreme weather events, such as cyclones, hurricanes, or floods. Chronic physical risks refer to longer-term shifts in climate patterns (e.g., sustained higher temperatures) that may cause sea level rise or chronic heat waves.

Physical risks may have financial implications for organisations, such as direct damage to assets and indirect impacts from supply chain disruption. An organisation's financial performance may also be affected by changes in water availability and sourcing, disruption to energy supplies, food security, transport needs (Impacts to associated infrastructure / transport networks e.g. rail links and ports), and extreme temperature changes affecting premises, operations, supply chain, and employee safety.

The potential financial impacts on the project which fall within this category are as follows:

- Reduced revenue from decreased production capacity (e.g. transport difficulties, supply chain interruptions);
- Reduced revenue and higher costs from negative impacts on workforce (e.g. health, safety, absenteeism);
- Write-offs and early retirement of existing assets (e.g. damage to property and assets in "high-risk" locations);
- Increased operating costs;
- Increased capital costs (e.g., damage to facilities);
- Reduced revenues from lower sales/output, and
- Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations.

While current climate conditions and weather variability may affect construction, projected longer term climate change scenarios may affect operation and into closure and post-closure. To address these environmental effects, proactive design, planning, and maintenance are required in consideration of the potential normal and extreme conditions that might be encountered throughout the life of the Project.

Impacts of climate change most relevant to the project include an unreliable supply of power and water and increase in the occurrence of floods events and droughts.

9.1.1.3 Mitigation Measures

From the assessment carried out, the clear opportunity for the Project to reduce GHG emissions is from energy efficiency measures both from energy consumption at the facility level and fuel consumption from the logistics operation. As such the following mitigation measures should be implemented:

Design measures

- Achieve a green building certification (LEED, IFC Edge, Energy Star) to demonstrate that energy efficiency measures have been carried out to as far as commercially and technically feasible;

- When selecting technologies, be it the refrigeration technology or the logistics fleet composition, this should be on the basis of best available technology in Rwanda and from a cost-benefit analysis;
- For key components, e.g. refrigeration technology, design the system as far as reasonably practicable so that it can be easily retrofitted/replaced at the end of its technical or economic lifespan with the current most efficient technology.

Construction

Although the construction phase of the Project will not result in significant GHG emissions, it should nevertheless make efficiencies whereever possible, not least because it reduces costs in most cases. Measures will include:

- Local procurement of goods and materials wherever possible through development and implementation of a Local Content Policy by CSRL;
- Contractor to develop and implement a Waste Management Plan applying the waste management hierarchy;
- Contractor to develop and implement a TMP to include measures to reduce as far as practical the number of trips;
- Contractor to use plant that is in good working order and regularly maintained.

Operation

The GHG Management Plan for the facility will include:

- Measuring of energy and fuel use data to calculate an accurate direct carbon footprint for the facility;
- On the basis of the results of the carbon footprint, seek to make efficiencies in areas of high GHG emissions; and
- Develop and implement a facility Waste Management Plan applying the waste management hierarchy.

Mitigation measures against Climate Change Risk to the Project

- Conduct a Climate Change Risk Assessment (CCRA)
    - A CCRA tool typically uses a combination of scientific data and local field assessments. Two comprehensive methodologies, a climate risk matrix and resilience score card, are used to identify key risks along value chains, as well as the strengths and weaknesses in actors' adaptive capacity. In this way, the climate risk assessment tool helps to comprehend and visualise rather complex concepts and to define effective and contextualised adaptation strategies.
- The risk of having an unreliable power supply can be mitigated through a transition through to decentralised, 'clean' sources of energy, which may be low emission alternatives that can also help reach emission reduction goals (solar has been integrated into the Project design (1 MW capacity, with the total demand of power from the Project being 2 MW). The same can be applied to the risk on the supply of fossil fuel-based energy for the Project's equipment and transport. A shift towards electric drive technologies and electric mobility will help mitigate the impact of this.
- Application of green infrastructure strategies to mitigate the impacts related to more intense rainfall / storm events
    - Use of Permeable pavement to allow runoff to flow through and be temporarily stored prior to discharge

- Use Underground storage systems to detain runoff in underground receptacles

- Water utility protection mitigations that can be implemented include:
  - Flood proofing, which involves elevating critical equipment or placing it within waterproof containers or foundation systems.
  - Building water storage infrastructure thus increasing climate resilience for seasonal or extended periods of drought / low water supply.
  - Diversify options for water supply and expand current sources.
  - Diversifying sources helps to reduce the risk that water supply will fall below water demand. Examples of diversified source water portfolios include using a varying mix of surface water and groundwater, employing desalination when the need arises and establishing water trading with other utilities in times of water shortages or service disruption.
  - Finance and facilitate systems to recycle water (which the Project has already considered in the design).

9.1.2 Impacts on the Noise Environment (including vibration)

9.1.2.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.1.0.

9.1.2.1 Proposed Project Activities

The main source of noise and vibration during the operations phase will be attributed to the trucks transporting the goods that will be stored at the warehouse, and the operation of power backup generator. Given that the Project Site has a steady electricity supply from the national grid and solar energy will be incorporated in the Project Design, the power backup generator will be rarely used, thus resulting in cumulatively negligible noise emissions. Approved standard trucks will be used in the transportation of goods to and from the warehouse along the already existing road networks. Given the many other roads users (trucks and all other forms of vehicles that ply the roads in the Project Area and beyond), the additional contribution of the Project trucks to noise along the transportation routes will be negligible.

Based on the above discussion, the impact of the Project on noise and vibration will be **Negligible** during the operations phase and has therefore not been discussed further. However, the following noise mitigation measures will be implemented to keep noise levels as low as possible:

- The Project trucks will be regularly maintained, as per the manufacturers' and mechanics' recommendations.
- The power backup generator will be located away from sensitive receptors as much as possible.
- The power backup generator will be fitted with silencers based on available best technology.
- Refrigerated trucks, when docking at the facility, will not use their engines to run the refrigeration units; rather these trucks will plug in to the facility's mains, as opposed to idling.
- All Project drivers will be required to observe applicable traffic rules and regulations as per the national laws.

9.1.3 Impacts on Water Resources

9.1.3.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.2.0.

9.1.3.1 Proposed Project Activities

The impact on water resources discussed in this section relates to stormwater management and supply of the Project's water needs; the impact related to effluents is assessed separately in Section 9.1.4.

The infrastructure for appropriate stormwater management will be constructed during the construction phase as discussed in Section 9.0.2 and regularly maintained as required during the operations phase. Therefore, stormwater management will not be an issue of concern during the operations phase. It is also important to note that the relative volume of stormwater from the Project Site in comparison to the wider KSEZ is very small.

The actual water requirement for this Project is small (82 m^3), and of this volume, approximately 60% of this water will be recycled after treatment at the Project WWTP. The facilities within the Project Area are currently connected to the Kigali Municipal water supply system. The current water demand is well met by the water storage tanks within KSEZ.

Based on the above discussion, the impact of the Project on water resources will be Negligible during the operations phase and has therefore not been discussed further. However, the following measures will be implemented to keep it more insignificant as much as possible:

- Regularly maintain the drainage system as required.
- Monitor and report on water utilisation and recycle wastewater as appropriate using available technology to the greatest extent possible.

9.1.4 Wastes and Effluents

9.1.4.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.5.0.

9.1.4.1 Proposed Project Activities

The existing water supply and sewerage management facilities within the KSEZ has trunk sewer lines comprising PVC pipes laid along the road reserves of the KSEZ's service corridors connected to all plots.

The Project will also have an on-site WWTP installed below the ground floor of the facility. This will treat and recycle water used in the refrigeration technology and also from light food processing undertaken on site, for example packaging of fruits and vegetables. The WWTP will discharge effluent treated to national discharge standards into the sewage trunk lines.

General waste will also be generated from the operations activities such as packaging wastes and wastes produced from sorting.

9.1.4.2 Sensitive Receptors

The sensitive receptors to waste and effluent management will be other developers within the Project Area.

9.1.4.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impact of effluent and waste management during the operations phase will be "**Moderate Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will only be manifested within the Project Area.
Duration	Long term	This impact will last for the entire operations phase which is planned to be more than 50 years.
Scale	Medium	The scale of this impact refers to the amount of waste that is likely to be generated.
Frequency	Daily	Wastes will be generated daily throughout the operations phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium		
Any poor waste management practices will be of a major concern in the Project Area.		
Significant Rating Before Mitigation		
Medium Negative Impact		

9.1.4.4 Mitigation/Management Measures

- A WMP will be produced for the operations phase:
  - following the principles of:
    - waste minimisation at source,
    - segregation for reuse,
    - recycling, and
    - safe disposal of waste.
  - With detailed measures stipulated such as:
    - using waste minimisation techniques;
    - allocating responsibilities for waste management;
    - identifying all sources of waste;
    - ensuring wastes are handled by personnel licensed to do so especially in the case of hazardous waste;
    - making suitable facilities available for the collection, segregation and safe disposal of the waste, also ensuring wastes are not blown off site by wind contributing to wind-blown litter in the area;
    - creating waste collection areas with clearly marked facilities such as colour coded bins and equipment for handling the various waste types; and
    - The collection of wastes that cannot be reused or recycled to be collected by approved waste contractors and transferred to an appropriate waste management facility for treatment and ultimate disposal (RURA licensed).
- Operations vehicles and equipment will be serviced off site at designated and approved servicing locations.

- The use, storage, transport and disposal of hazardous materials used for the Project will be carried out in accordance with all applicable Rwandan regulations (including the RURA Regulations governing the provision of services for hazardous waste management), and MSDS. Any hazardous wastes to be disposed of should be documented beforehand, treated as per any requirements of the MSDS sheets, and disposed of in consultation with the District Authorities and via RURA-approved waste handlers.
- In line with the requirements of the RURA Regulations governing the provision of services for hazardous waste management, any generated hazardous waste should be transported and managed by RURA permitted hazardous waste handlers.
- Any waste batteries and/or broken or discarded solar panels, should be recycled through an applicable e-waste recycler, and handled through an appropriate RURA waste contractor, certified to handle such wastes.
- Any waste effluent discharged to sewer will need to conform to the permit conditions for such waste effluent.
- Waste volumes produced, waste volumes recycled, and the quality of effluent relative to permit conditions, must be monitored and reported as part of the facility ongoing HSE programme.

9.1.4.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the impact of waste and effluent management will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	This impact will only be manifested within the Project Area.
Duration	Long term	This impact will last for the entire operations phase which is planned to be more than 50 years.
Scale	Low	The scale of this impact refers to the amount of waste that is likely to be generated. With the application of appropriate waste management measure including the application of the waste management hierarchy, less waste will be generated.
Frequency	Daily	Wastes will be generated daily throughout the operations phase.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact		

9.1.5 Impacts on Employment, Procurement, and the Economy

9.1.5.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.6.0

9.1.5.1 Proposed Project Activities

The proposed Project will create both direct and indirect employment opportunities across different skills levels (unskilled, semi-skilled and skilled) during the operations phase. A workforce of approximately 100-150 people is expected to be directly employed at the Project during the operations phase. Indirect employment is also expected from customers, and induced employment related to jobs ensuing from the expenditure of incomes associated with direct and indirect Project related jobs.

Another positive impact on the economy as a result of this Project, is improved post-harvest food management through the use of the Project facilities, which will result in a reduction in food waste, especially during the harvesting seasons. This will result ultimately in the flattening of food prices (as opposed to seasonal variations) and overall improvement in food management along the food value chain. This positive impact will be further accentuated with further planned cold storage solutions for Rwanda by the Project Proponent.

9.1.5.2 Sensitive Receptors

The inhabitants of communities around KSEZ will be able to make the most of the direct and indirect employment opportunities offered. The Project customers are expected to come from across Rwanda.

9.1.5.3 Impact Summary (Pre-enhancement)

Type of Impact
Positive Impact
Direct and indirect employment opportunities, and combined multiplier effect of this economic growth will result in increased incomes; promoting some degree of an increase in standards of living.

9.1.5.4 Enhancement/ Management Measures

In order to enhance this positive impact, the following management measures will be implemented:

- The Project will prioritise the recruitment of workers (unskilled, semi-skilled and skilled) from the local communities around KSEZ where available through the development and implementation of a Local Content Policy.
- The Project will develop a fair and transparent employment and procurement policy, and will implement processes, that prevents any form of nepotism and favouritism. CSRL will develop a recruitment plan.
- Advertisements on the employment and procurement opportunities during the operations phase will be placed at the local leader's notice board. In the event that the position cannot be filled from within the Project Area, it will be advertised county-wide, and only then, nationally.
- No recruitment will take place at the entrance gates of the facility.

9.1.6 Traffic Impacts

9.1.6.0 Description of the Baseline Environment

Same as that described for the construction phase under Section 9.0.8.0.

9.1.6.1 Proposed Project Activities

During the operations phase, Project traffic will mainly comprise of trucks transporting customer goods to and from the Project Site as well as a few vehicles for the operations staff. These trucks and other vehicles will be using the available local and wider road network and regulated as per law N°55/2011 of 14/12/2011 Governing Roads in Rwanda. Although the existing road network is open to traffic and will thus be serving its purpose, increased traffic due to transportation of the Project's goods has a potential of slowing down road traffic along the routes that will be used.

The risk of injuries from road traffic accidents are generally low; nevertheless, this is assessed separately in Section 9.1.7.

The increase in traffic could also create dust, noise[18] and may impact on safety (including injury or even death due to accidents) of other road users, and on people living or working within close proximity to the roads on the transport routes.

9.1.6.2 Sensitive Receptors

The receptors for traffic impacts will be the other users of the roads that will also be used during the transportation Project goods.

9.1.6.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, traffic impacts during the operations phase will be "**Moderate Negative**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	Increased road traffic attributed to the Project will be only noticeable within the Project Area. Increment on road traffic along distant major highways which are already subjected to heavy traffic volumes will be insignificant.
Duration	Long term	This impact will occur throughout the operations phase.
Scale	Low	The expected Project's contribution to increased traffic along the existing road network within the Project Site will be low.
Frequency	Daily	This impact will occur daily during the operations phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium Sensitivity		
Traffic impacts will inconvenience the other road users and businesses along them.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

9.1.6.4 Mitigation/Management Measures

- Develop and implement a "Driving Policy".
- Project drivers will undergo the necessary driver training and will be trained in defensive driving. Drive training will be mandatory for all drivers.
- The Project will develop and implement an Operations Phase TMP. The implementation of this Plan will be regularly monitored and audited, and the results of such audits and monitoring will be regularly reported.
- Regularly maintain Project vehicles and equipment as per the manufacturers' recommendations.

9.1.6.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of traffic impacts will be a "**Minor Negative**" post mitigation as per the assessment below.

18 Impacts of dust and noise are assessed separately in Sections 9.0.0 (Impacts on Local Air Quality) and 9.0.1 (Impacts on the Noise Environment and Vibrations).

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	Increased road traffic attributed to the Project will be only noticeable within the Project Area. Increment on road traffic along distant major highways which are already subjected to heavy traffic volumes will be insignificant.
Duration	Long term	This impact will occur throughout the operations phase.
Scale	Very Low	The expected Project's contribution to increased traffic along the existing road network within the Project Site will be very low.
Frequency	Daily	This impact will occur daily during the operations phase.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact		

9.1.7 Labour and Working Conditions (Including Occupational Health and Safety)

9.1.7.0 Description of the Baseline Environment

Same as in Section 9.0.9.

9.1.7.1 Proposed Project Activities

OHS risks during the operations phase will include:

- Movement of vehicles both internally and externally[19];
- Operation of heavy machinery
- Working in refrigerated spaces;
- Working at heights;
- Ergonomic risks related to packing and unpacking of goods in the warehouse such as lifting of heavy loads; and
- Ammonia leaks from the refrigeration system[20].

Risks related to labour include human rights violations associated with unfair working conditions, including: discrimination, unfair treatment, prevention of freedom of association, use of child/forced labour and poor working conditions (i.e. provision of breaks, access to sanitary facilities, working hours, terms of payment, lack of contracts in place etc.).

9.1.7.2 Sensitive Receptors

Same as that described for the construction phase in Section 9.0.9.

9.1.7.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts to exposure of the workforce to inappropriate labour and working conditions (including OHS risks) during the operations phase will be a "**Moderate Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact
Direct Negative Impact

19 Traffic impacts are assessed separately in Section 9.1.6.

20 The risk of accidental leakages including ammonia leaks is assessed separately in Section 9.2.0.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impact is only relevant for the direct workforce all of whom will generally be at a local level (although a few of them especially for specialised skills may come from elsewhere in Rwanda or globally).
Duration	Long term	This impact will continue to be manifested throughout the operations phase.
Scale	Large	This impact will affect a proportion of the 100 – 130 workers estimated to be employed at the Project during the operations phase. Some of the emanating impacts such as major injuries can be severe including loss of life which can significantly affect households and communities ability to maintain their quality of life and livelihoods.
Frequency	Intermittent	Impact is likely to recur / occur intermittently throughout the operations phase.
Magnitude		
Medium Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		
Medium Sensitivity		
Receptors to this impact will include the workers at the Project during the operations phase.		
Significant Rating Before Mitigation		
Moderate Negative Impact		

9.1.7.4 Mitigation/Management Measures

- The Project will develop and implement an operations phase OHS Management System in line with good industry practice. This system should include consideration of hazard identification, risk assessment and control, use of PPE, incident investigation and reporting, reporting, training of workers on OHS risks and tracking of near misses, incidents etc. The management system should also include emergency response plans that tie into existing emergency response plans at KSEZ. Roles and responsibilities for the implementation of the OHS Management System should be clearly defined.
- The Project will develop a Human Resources Policy to guide labour recruitment and labour management. This will include a Labour and Employment Plan and Worker GRM. Key issues covered by such Plans will include, but not be limited, to the following:
    - Provision of clear and understandable information regarding rights under national labour and employment law, and any applicable collective agreements, including those related to hours of work, wages, overtime, compensation, etc.;
    - Provision of reasonable working conditions and terms of employment;
    - Provision of employment , compensation/remuneration and working conditions, including working hours, based on equal opportunity and fair treatment, avoiding discrimination on any aspects;
    - Provision of adequate welfare facilities on site;
    - Implementation of a grievance mechanism;
    - Adoption and implementation of a sexual harassment policy;
    - Prohibition of child and forced labour; and
    - Adoption of open attitude towards freedom of association.
- All workers will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where

this is necessary, to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work.

- Mitigation measures related to human rights violations are presented in Section 9.0.9.
- All workers (including those of contractors and subcontractors) should, as part of their induction, receive training on health and safety guidelines (including awareness-raising of disease vectors) and should receive updated training routinely, as well as when undertaking new tasks, such as working at heights or working in confined spaces.
- Daily toolbox talks will be held with the Project workers to discuss the health and safety risks associated with the tasks at hand.
- A 'fitness for work' programme should be established to ensure that all employees are physically able to undertake their work without impact to their health;
- An occupational health and safety monitoring and surveillance programme should be established;
- Specific OHS training programmes should be provided for workers assigned to tasks associated with particular H&S risks;
- The provision and enforcement of use of appropriate PPE based on task-based hazard analysis;
- Visual warning signs should be put in place, including those for the electrical and mechanical equipment safety warnings, and chemical hazard warnings;
- Working hours should be regulated in accordance with national legislation and international guidelines.
- Annual OHS and fire safety audits will be conducted by appropriately registered and independent consultants.

9.1.7.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the residual impact related to exposure of the workforce to OHS risks will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	The impact is only relevant for the direct workforce all of whom will generally be at a local level (although a few of them especially for specialised skills may come from elsewhere in Rwanda or globally).
Duration	Long term	This impact will continue to be manifested throughout the operations phase.
Scale	Small	This impact will be largely avoided, and in case of occurrence only lightly affect a few workers.
Frequency	Rare	With the implementation of the recommended mitigation measures, this impact will be largely avoided and only rarely occur.
Magnitude		
Small Magnitude		
Significant Rating After Mitigation		
Minor Negative Impact[21]		

[21] The conduct of OHS awareness trainings amongst the Project workers will reduce their sensitivity to Medium thus resulting in a Minor Negative residual impact.

9.1.8 Community Health, Safety and Security Risks

9.1.8.0 Description of the Baseline Environment

Same as Section 9.0.10.

9.1.8.1 Proposed Project Activities

The following Project activities, but not exclusively so, may result in risks to community health, safety, and security:

- Operation of Project infrastructure as well as the movement of vehicles through or near communities.
- The Project's use of private security personnel to secure their operations, and the level of interaction between these forces with local communities during (1) routine operations (2) emergency events, (3) conflicts, strikes or demonstrations.

The establishment of the Project will result in a broad range of community health, safety and security risks, and these risks cross through a range of technical expertise (i.e. occupational health and safety, air emissions, water pollution etc.). Community health, safety and security is however an umbrella term, and the potential project risks may specifically include:

- Community exposure to ground and surface water pollution,
- Community exposure to general and hazardous waste storage and transport,
- Public vehicle and pedestrian traffic on private and public roads (although incremental traffic will be negligible given that existing roads will be used, which are already accommodating heavy traffic)

9.1.8.2 Sensitive Receptors

Sensitive receptors will be communities surrounding the Project and transport corridor.

9.1.8.3 Significance of Impact (Pre-mitigation)

Based on the analysis provided above, impacts to exposure of the community to poor community, health, safety and security standards will be a "**Moderate Negative Impact**" pre-mitigation as per the assessment below.

Type of Impact		
Direct Negative Impact		
Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project Area.
Duration	Short term	Generally, the implications of inadequate community health, safety and security conditions will cease to manifest after the construction phase; however, some of the effects such as major injuries will continue to affect the concerned individuals.
Scale	Large	Without any effective management, the potential for a major community incident and emergency events is more than likely.
Frequency	Intermittent	Impact is likely to recur / occur intermittently throughout the construction phase.
Magnitude		
Small Magnitude		
Sensitivity/Vulnerability/Importance of the Resource/Receptor		

Medium Sensitivity
Communities are vulnerable to health, safety, and security impacts. The potential for a community incident and emergency events, and impact on community health, is all but guaranteed when construction commences if there are no active management measures in place.
Significant Rating Before Mitigation
Minor Negative Impact

9.1.8.4 Mitigation/Management Measures

Management System

- The Project should update and implement a Community Health, Safety and Security Management System in line with good industry practice, including the requirements of the IFC PS 4.

Employee Management

- The Worker Code of Conduct to be developed for the construction phase should be updated for Project employees in the operations phase.
- The development and implementation of vector borne disease policies and information documents for all workers directly related to the project.
    - The information document will address factual health issues as well as behaviour change issues around the transmission and infection of vector borne diseases e.g. Malaria
- Ensure sufficient health services are available to meet the day to day needs of Project personnel without impacting on access to health care for communities. First aid training should be provided to Project personnel.
- Implement and disseminate information on the GRM. The grievance mechanism will provide a clear process for informing stakeholders of the process for reporting complaints about security personnel and addressing any such complaints in a timely manner.

Traffic-related Mitigations

- Refer to Section 9.2.7.

Plans to develop / update

- Prepare a Security Management Plan developed for the operational phase
- Update the EPPRP to align with operational activities. This should be done in collaboration with the local and regional Government and local emergency providers and local health care facilities.

9.1.8.5 Residual Impact (Post-Mitigation)

Based on the implementation of the proposed mitigation measures, the significance of the residual impact related to exposure of the community-to-Community health, safety and security risks will be a "**Minor Negative Impact**" post mitigation as per the assessment below.

Rating of Impacts		
Characteristic	**Designation**	**Summary of Reasoning**
Extent	Local	It is anticipated that the potential impacts of increased disease transmission will be limited to the Project Area.
Duration	Long-term	Generally, the implications of inadequate community health, safety and security conditions can be severe including loss of life which can

		significantly affect households and communities ability to maintain their quality of life and livelihoods.
Scale	Very Small	With the implementation of the management measures, the number of community members exposed to community health, safety and security risks will be very small.
Frequency	Rare	With the implementation of the management measures, exposure of Project workers to community health, safety and security risks will be rare.
Magnitude		
Negligible Magnitude		
Significant Rating After Mitigation		
Negligible Negative Impact[22]		

9.2 Unplanned Events

Unplanned events are activities that are not expected to occur during a project's normal activities, such as accidental leaks and spills. The significance of impacts associated with unplanned events cannot be determined using the framework described in Chapter 3, because:

- The range of possible effects of a single event is highly variable (i.e. the impact intensity is almost infinitely variable); and
- The kind of unplanned event that may result in a severe environmental impact is, by definition, undesirable, and the Project has substantial built-in controls to avoid such occurrences. Therefore, the probability of such an event occurring should always be very low, whereas the framework described in Chapter 3 is designed for the assessment of impacts that are considered reasonably likely to happen.

Therefore, while consideration is given in this ESIA Project Report to some of the Project design measures designed to prevent undesirable events, the assessment of potential impacts resulting from unplanned events is restricted to comments regarding the relative sensitivity of the receiving environment should such an event occur and potential levels of consequence. The management measures included in this section are to be in-built in the Project design to further minimise the possibility of occurrence of the unplanned events. In addition, EPPRPs are recommended for the management of impacts from unplanned events in the event that they occur.

9.2.0 Accidental Leaks and Spills

9.2.0.0 Description of the Baseline Environment

Same as that described for the construction phase under *Section 9.0.5* (Wastes and Effluents).

9.2.0.1 Proposed Project Activities

Accidental leaks and spills by their nature are undesirable and unplanned since their effects are largely unpredictable depending on the extent of the leak or spill. Therefore, the Contractor (during construction phase) and the Project Developer (throughout the project life cycle) will incorporate best industry standard controls to minimise the possibility of having an accidental leak or spill.

Despite the above, accidental leaks and spills can potentially occur in areas where liquids (including condensed gases) are stored or used. In reference to the proposed Project, the Project equipment and machinery will use fuel (diesel and/or petrol) as well as oil for lubrication during both the construction and operations phase. If there are any unnoticed leaks on the fuel or oil tanks, the fuel

and/or oil will flow to the ground thus contaminating the soils and can potentially flow in storm water to the nearby dam thus reducing its water quality.

In addition, refrigerants such as ammonia will be used during the operations phase. In particular, ammonia is toxic and hazardous with irritating and corrosive effects. Contaminations at a level above 300 ppm or higher are life threatening. However, due to its distinctive acrid smell, which can be noticed in very low concentrations starting at 5 ppm, humans normally notice it well below the threshold of a harmful concentration.

Another risk associated with use of ammonia is explosion and fire. Ammonia is a flammable gas and can form flammable or potentially explosive compounds in dry air when in a gaseous state. The concentration threshold is between 15 and 28 volume percent. However, the required ignition temperature is rather high at least 1202 °F/650 °C. Due to this and other chemical properties of ammonia, explosions and fires purely caused by it are very rare (the possibility of its occurrence only happens if its concentration in unventilated rooms exceeds the explosion limit (15 volume percent) or if high-energy ignition sources such as high-temperature welding are present).

9.2.0.2 Sensitive Receptors

Same as that described for the construction phase under Section 9.0.5 (Wastes and Effluents). In addition, Project workers are another category of sensitive receptors for this impact.

9.2.0.3 Mitigation/Management Measures

General Leaks and Spills Management

- All Project equipment and machinery will be properly maintained as per the manufacturer's recommendations. In particular, the status of fuel and oil tanks will be checked.
- At the start of every work day, Project vehicles and equipment will be checked for spills and leakages.
- Project equipment and machinery will be serviced off site.
- Fuel, oil and used oil storage areas will be contained in bunds of 110 percent capacity of the stored material. Fuels will be stored in above-ground storage tanks.
- Spill containment and clean up kits will be available onsite and clean-up from any leakage or spill will be appropriately contained and disposed of.

Specific Management Measures for Use of Ammonia as a Refrigerant

Outlined below are specific management measures for use of ammonia as a refrigerant; however, it is understood that the Project Proponent has contracted a refrigerant consultant, who will be responsible for the maintenance and monitoring of such:

- Maintenance work at ammonia refrigeration systems requiring welding, soldering or cutting must be performed with extreme caution: existing oil mists can lower the explosion limit of ammonia/air mixtures. Ammonia systems should; therefore, be purged with air or a non-flammable gas prior to starting the welding work in order to remove residual ammonia.
- Early leakage detection through installation of an automatic and specific chemical detection system depending on available technology as well as smell detection by the Project workers. In particular, this will require training of all the operations phase Project workers on early detection of ammonia smell.
- Conduct regular maintenance of both the refrigeration system and the leakage detection technology.
- Prepare an EPPRP for implementation in case of major leakages or explosion.

9.3 Cumulative Impacts

Cumulative impacts are a result of effects that act together (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project under consideration (e.g. the combined effect of other similar projects in the general area).

An effect to a resource in itself may not be considered significant but may become significant when added to the existing and potential effects eventuating from similar or diverse developments in the area.

In practice, effective design and implementation of complete cumulative impacts assessment (CIA) processes is often beyond the technical and financial capacity of a single developer as recognised in IFC's Good Practice Handbook for CIA. CIA thus transcends the responsibility of a single project developer. However, occasionally, it may be in the best interest of a private sector developer to lead the CIA process, but the management measures that will be recommended as a result of the process may ultimately be effective only if the government and other relevant institutions are involved. CIAs are multi-stakeholder, iterative processes that:

- Require the involvement of multiple multi-disciplinary teams and an effective, efficient governance structure, and
- Tend to be time and data intensive.

In light of the above and in relation to the proposed Project, a number of other Projects are proposed and many of them already implemented within the KSEZ. The PEZ oversees all developments in the KSEZ which puts into consideration CIA. The Project Developer will continue to liaise with the PEZ to identify and implement synergies and minimise E&S cumulative impacts as much as possible.

9.4 Decommissioning Impacts

As mentioned in Chapter 4, the Project will have a lifespan in excess of 50 years and demand for cold storage will only grow during this period in Rwanda. As such, two options are considered for decommissioning:

- Components that have a shorter lifespan such as the cooling system and vehicles will be replaced, and the facility will continue to function. It is likely that the cooling system, at least in part, will need to be replaced after 20 years and this provision is made in the design of the facility.
- On the basis that the facility is no longer required it will be dismantled and the site returned to its original state (this is most unlikely potential changes/developments that will have occurred in its neighbourhood).

Should option 2 materialise then the decommissioning phase will be similar to the construction phase in terms of E&S impacts. The majority of the warehouse superstructure is made of steel and recyclable components. The concrete foundations and other non-recyclable elements will be disposed of to landfill. Given that the lifespan is over 50 years, the exact practical measures at the time of decommission cannot be ascertained at this time given expected changes in its neighbourhood and advances in technology; therefore, the following general recommendation is made:

- Prepare an appropriate decommissioning plan at least one year in advance. The decommissioning plan should put into consideration advances in technology and development.

9.5 Summary of Impacts and Residual Impacts

Table 9-5 Summary of Construction Phase Impacts

Impact	Significance (pre-mitigation)	Residual Impact
Impacts on Local Air Quality	Minor Negative	Negligible
Impacts on the Noise Environment and Vibrations	Minor Negative	Minor Negative
Impact on Biodiversity	Minor Negative	Negligible
Waste and Effluent	Moderate Negative	Minor Negative
Impacts on Employment, Procurement and the Economy	Positive Impact	Positive Impact
Impact on Disease Transmission	Minor Negative	Negligible
Traffic Impacts	Moderate Negative	Minor Negative
Labour and Working Conditions (Including Occupational Health and Safety)	Moderate Negative	Minor Negative
Community Health, Safety and Security	Minor Negative	Negligible

Table 9-6 Summary of Operations Phase Impacts

Impact	Significance (pre-mitigation)	Residual Impact
Impacts on Local Air Quality	Minor Negative	Negligible
Waste and Effluent	Minor Negative	Negligible Negative
Impacts on Employment, Procurement and the Economy	Positive Impact	Positive Impact
Traffic Impacts	Moderate Negative	Minor Negative
Labour and Working Conditions (Including Occupational Health and Safety)	Moderate Negative	Minor Negative
Community Health, Safety and Security	Minor Negative	Negligible

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

10.0 Introduction

The purpose of this ESMMP is to ensure that social and environmental impacts and risks identified during the ESIA process are effectively managed during the construction and operations of the Project. The ESMMP specifies the mitigation and management measures to which the Project Proponent and the Contractor are committed and shows how the Project will mobilise organisational capacity and resources to implement these measures. The ESMMP also shows how mitigation and management measures will be scheduled and will ensure that the Project complies with the applicable laws and regulations within Rwanda, as well as the requirements CSRL's E&S Compliance Framework (Section 10.1).

The key objectives of the ESMMP are to:

- Formalise and disclose the programme for E&S management; and
- Provide a framework for the implementation of E&S management initiatives.

Best practice principles require that every reasonable effort is made to reduce, and preferably to prevent, negative impacts while enhancing the Project benefits. These principles have guided the ESIA process.

The overall responsibility for the ESMMP lies with the Project Proponent (CSRL) and the Contractor that will be appointed and responsible for carrying out the specific Project activities.

10.1 CSRL E&S Compliance Framework

In the development, construction and operation of the Project CSRL and its contractors and business partners will adhere to the following standards:

- All applicable legislation and regulations in Rwanda;
- Guidelines outlined by the PEZ/ checklist provided by the PEZ;
- IFC PS (2012) and the WBG General EHS Guidelines (2007);
- The AfDB ISS (2013).

This ESMMP has been developed in accordance with the requirements of these regulations and standards.

10.2 Environmental and Social Management and Monitoring Plan (ESMMP)

The ESMMP covers information on the management and/or mitigation measures that will be taken into consideration to address impacts with respect to:

- The construction phase (including mobilisation and demobilisation activities associated with the construction phase); and
- The operations/ Maintenance phase.

In practice, some of the recommended management measures will be incorporated into the Project design/ influence the Project design, to avoid or minimise the identified negative Project impacts as indicated in this ESMMP.

Table 10-1 summarises the ESMMP for the Project. It describes the mitigation measures to be undertaken, and, to ensure the mitigation measures are adequately implemented, a monitoring programme is also described. This programme provides for parameters that can be monitored, and suggests how monitoring should be done, how frequently, and who should be responsible for such monitoring.

Table 10-1 Environmental and Social Management and Monitoring Plan (ESMMP)

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
Construction Phase					
General	Contractor is required to develop and implement a contractor's Construction Environmental Management Plan (C-ESMP) meeting the conditions set out in the environmental authorisation (EIA Certificate for this Project once issued by RDB), as well as this ESIA Report and lender requirements. All applicable elements of this ESMMP should be used in drafting and finalising the contractor specific C-ESMP, which is to be used for the construction phase, and against which the E&S performance of the contractor will be monitored.	Contractor	A comprehensive and appropriate C-EMP in place	Once – off (prior to commencement of construction activities, but after obtaining RDB EIA Approval)	No additional cost (expected to be undertaken by the contractor's E&S team)
Impacts on Local Air Quality (*Section 9.1.1*)	▪ Develop and implement a grievance procedure to manage any dust complaints. ▪ Where feasible, regularly wetting or chemically treating of exposed open earthworks such as at the levelled and material laydown areas. Upon completion of earthworks, stabilisation of temporary used surfaces (i.e., establishing vegetative cover as part of the landscaping activities, or placing ground cover) should occur as soon as possible. ▪ Regular wetting of construction access routes. This will not only lower dust levels but will improve visibility, and hence lower the risk of accidents. ▪ Vehicles to maintain speed limits imposed. ▪ The smallest possible area for cleared ground required for construction work should be exposed. ▪ Drop heights of material should be minimised, as far as reasonably possible. ▪ Soil and aggregate stockpiles should be managed in accordance with the mitigation / management measures provided for Impacts on Water Resources (refer to Section 9.2.3). ▪ Where feasible and reasonable, vehicles that are compliant with recent emission standards (for example, EURO Tier 3) should be	Contractor	No recorded incidents or dust-related grievances to surrounding land users Records of audits/visual inspection Air quality emissions at respective receptors not exceeding the maximum permitted limits	Daily	All associated costs presumed included in overall construction costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	used. These vehicles should be maintained in reasonable working order. ▪ When not in use, vehicles should be switched off, unless impractical for health and safety reasons (for example maintenance of air conditioning). ▪ Construction equipment should be maintained and serviced on a regular basis to ensure that they function optimally and to reduce excessive emissions, this will also apply to all stationary generators utilised on site. ▪ Issue all Project workers appropriate PPE including dust masks where required. ▪ Develop and implement an appropriate TMP throughout the construction phase. ▪ Any spillages at the Project Site or along access routes should be cleaned up within a reasonable time in line with the spill response procedure to prevent secondary emissions. For GHG emissions: Although the construction phase of the Project will not result in significant GHG emissions it should nevertheless make efficiencies where ever possible, not least because it reduces costs in most cases. Measures will include: ▪ Local procurement of good and materials wherever possible through the development and implementation of a Local Content Policy; ▪ Contractor to develop and implement a Waste Management Plan applying the waste hierarchy; ▪ Contractor to develop and implement a TMP to include measures to reduce as far as practical the number of trips; ▪ Contractor to use plant that is in good working order and regularly maintained.				
Impacts on the Noise Environment	▪ Develop and implement a grievance procedure in the event of any noise and vibration impact complaints being received. Site management should periodically check the site and nearby	Contractor	No recorded noise-related incidents or	Monthly	Noise management costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
(including vibration) (*Section 9.1.2*)	developments for noise and vibration related issues so that solutions can be efficiently and timeously applied. ▪ Periods of respite should be provided in the case of unavoidable exposure to high noise level events. These respite periods should be negotiated with the affected receptors. ▪ Regular inspection and maintenance of all machinery and vehicles. ▪ Installation of silencers or acoustic enclosures on machinery, where applicable, such as installation of suitable mufflers on engine exhausts and compressor components as well as the use of portable sound barriers around noisy equipment like generators. ▪ As far as reasonably possible, avoid or minimise Project traffic routing through community areas and the implementation of speed limits for all construction vehicles. ▪ Limiting hours of operation for specific equipment or operations (e.g. trucks or machines). In particular, limit use of heavy construction machinery to daytime only (06:01 am – 8:00 pm). ▪ Restricting noise levels at the project boundary within the industrial area from construction activities to 75 dB LAeq during the daytime, and 70 dB LAeq at night as far as is practicable, or to other standards that have been agreed with the local authority. Ensuring that the construction team and equipment used must comply with the noise limit. ▪ Noise monitoring against the performance criteria presented above should be implemented if persistent noise complaints are received (refer to WBG EHS General Guidelines for more information). ▪ All employees are to be provided with, and are to wear, appropriate hearing protection such as earmuffs and earplugs where necessary. ▪ Avoid idling of Project vehicles and equipment when not in use. ▪ Shutting down of machines in intermittent use in the intervening periods between work (or throttle them down to a minimum).		grievances to surrounding land users Noise monitoring records Noise emissions at respective receptors not exceeding the maximum permitted limits		presumed included in overall construction costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
Impacts on Water Resources (*Section 9.1.3*)	**General Measures** ▪ The Project should develop and implement a grievance procedure to deal with complaints including those related to impacts on water quality. ▪ Regularly maintain the Project equipment as per the manufacturer's instruction to avoid the possibility of any leaks and spills. ▪ Liaise with the PEZ on wastewater discharge and stormwater management requirement given that this is the responsible institution for their management in the wider KSEZ. ▪ Method Statements detailing spill emergency response and clean-up procedures for spills should be developed. ▪ Training regarding proper methods for transporting, transferring and handling hazardous substances that have the potential to impact surface and groundwater resources should be undertaken. ▪ Areas where spillage of soil contaminants occurs should be excavated (to the depth of contamination) and suitably rehabilitated. If any other minor spillage occurs, it should be cleaned as soon as possible, but within the same shift and the contaminated area should be reinstated. All contaminated material should be suitably disposed of. ▪ The *ad hoc* maintenance, with the exception of emergency repairs; of vehicles in and around the Project Site should be prevented, as far as reasonably possible. All major services and ad hoc maintenance of vehicles and equipment should be done at a designated workshop. The workshop should be properly constructed to prevent pollution and should as far as reasonably practical include containment berms and an oil/grease trap. ▪ All construction areas and associated facilities should be maintained in a good and tidy condition; debris and wastes should be contained in such a way that they cannot become entrained in surface runoff during periods of heavy rain. ▪ Where practical, exposed surfaces and friable materials should be covered/sheeted.	Contractor in liaison with the PEZ	No recorded water (quality, quantity or stormwater flow) -related incidents or grievances from surrounding land users Visual audits/spot checks Good housekeeping at the Project site Well drained Project site Areas used for temporary construction activities fully restored	Weekly	Included in overall construction costs as good practice

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ Sufficient portable toilets at active work areas should be provided for site staff and workers and these should be serviced regularly by a competent and suitably qualified person. ▪ The sewage treatment/ containment system should be managed in a manner that results in zero discharge of raw sewage to the environment, and if treated sewage is discharged into the environment then this should conform to recognised Rwandan discharge standards prior to discharge. ▪ All wastewater which may be contaminated with oily substances should be managed in accordance with an approved Waste Management Plan, and no hydrocarbon-contaminated water should be released into the environment. **Specific Measures – Flow (including stormwater water)** ▪ Project infrastructure should be designed and located to minimise the impacts to natural water flow. ▪ Connect stormwater channels from the Project Site to the main stormwater ducts established by Kigali Municipal. ▪ The design of all the drainage channels should be informed by the climate of the Project Area to be constructed to be able to manage peak run-off. ▪ Ensure protection of soil adjacent to the side drains and the constructed drainage facilities. ▪ Spoil/excavations should be visually assessed to determine if it is contaminated. In the event that the spoil is contaminated, it should be handled as a hazardous material and disposed of under supervision and into controlled dumping areas.				
Impacts on Biodiversity *(Section 9.0.4)*	**Control Measures for Invasive Plant Species** ▪ All alien vegetative and/or seed-bearing material that is removed should be burnt on Site to prevent the distribution of seed and fertile vegetative material, regardless of the status of the surrounding areas. ▪ Request for burning authorisation from the local administrative authorities i.e., REMA. (See Rwanda's Guidelines for the Management of Invasive Alien Species and Law N° 15/2018 of 13/04/2018).	Contractor	Observed *Lantana camara* at the Project Site effectively controlled Landscaping designs approved by PEZ	Monthly	Included in overall construction costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	Landscaping Measures ▪ In liaison with the PEZ, appropriate landscaping plants should be planted in the compound of the Project as per the PEZ guidelines. Indigenous plants should be used as far as practical to minimise water use, and to prevent the spread of alien invasive. ▪ Invasive plants (such as lantana) are often used as ornamental plants, and these must be avoided.				
Wastes and Effluents (*Section 9.1.6*)	▪ Spoil generated should be disposed of on pre-identified and approved locations (impact assessment should be completed for the locations if not already approved). ▪ A WMP will be produced for the construction phase. ▪ Construction vehicles and equipment will be serviced off site at designated and approved servicing locations. ▪ The use, storage, transport and disposal of hazardous materials used for the Project will be carried out in accordance with all applicable Rwandan regulations, and Material Safety Data Sheets (MSDS). Any hazardous wastes to be disposed of should be documented beforehand, treated as per any requirements of the MSDS sheets, and disposed of in consultation with the applicable District Authorities and via RURA approved waste handlers. ▪ Occasional audits to monitor waste handling company performance should be undertaken by the Project proponent. ▪ The Contractor will be required to supply the required temporary ablution facilities and be responsible for the treatment and/or removal of sewage wastes off site. The Contractor will also be required to ensure that any sub-contracting company is accredited and has the necessary permits to remove sewage waste. ▪ The sewage must be treated in accordance with the applicable Rwandan laws and standards (including effluent standards). ▪ All construction laydown areas shall comply with the Project WMP and be provided with appropriate waste handling equipment.	Contractor	An effective WMP in place No recorded grievances at the waste sources or related to the supply of construction materials Records of audits/visual inspection	Monthly	Included in overall construction costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ Work sites will have appropriate solid waste holding receptacles for the expected different types of waste, and waste is to be managed according to the waste management hierarchy. Waste is to be sorted for ease of segregation, reused, recycled, and disposed of only as a last resort. ▪ In line with the requirements of the RURA Regulations governing the provision of services for hazardous waste management, any generated hazardous waste should be transported and managed by RURA permitted hazardous waste handlers.				
Impacts on Employment, Procurement and the Economy (*Section 9.1.7*)	▪ The contractor will prioritise the recruitment of workers (unskilled, semi-skilled) from the local communities around KSEZ where available through the development and implementation of a Local Content Policy. ▪ The contractor will adhere to CSRL's Equal Opportunities and Diversity Policy to be developed and implemented by CSRL. ▪ The Contractor will notify identified representatives of the District Government and Local Administration (i.e. village leaders) of the specific jobs and the skills required for the Project, during the recruitment process. ▪ Advertisements on the employment and procurement opportunities during the construction phase will be placed at the village leader's notice board, and applications are to be done through this office. In the event that the position cannot be filled from within the Project Area, it will be advertised further county-wide then nationally. ▪ No recruitment will take place at the entrance gates of the facility ▪ The Contractor will aim at procuring locally available materials where feasible and use local suppliers where appropriate.	Contractor	Contractor recruitment plan Employment records	Preparation of Human Resources guiding documents (including recruitment guidelines) prior to construction Employment records checked monthly	Internal costs
Impact on Disease Transmission (*Section 9.1.8*)	▪ The Contractor will prepare a COVID-19 response and management plan based on a risk assessment considering international guidance, e.g., from the WHO, and in accordance with Rwandan regulatory requirements. ▪ Workers should receive awareness training as part of their induction and then at least every 6 months on potential high risk communicable and vector borne diseases, symptoms, preventative measures and transmission routes as well as	Contractor in liaison with CSRL	HIV/AIDS/Malaria/TB Policy COVID-19 Response and Management Plan Worker Code of Conduct	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	treatment options. This will be particularly important for diseases with which non-local workers are unfamiliar and in case of any emerging disease outbreaks. ▪ In the event of a new disease, increased transmission or outbreak compared to the baseline, the Contractor should interact with local health care facilities and workers to ensure there is an appropriate response in place to make workers aware and to ensure proper precautionary measures are implemented. ▪ The Contractor will adhere to CSRL's Supplier Code of Conduct (to be developed and implemented by CSRL) providing a worker code of behaviour including worker-worker interactions, worker-community interactions and development of personal relationships with members of the local communities. ▪ Providing workers with appropriate sanitary facilities, which are appropriately designed to prevent contamination. ▪ Developing a robust waste handling system to avoid the creation of new vector breeding grounds or attracting rodents to the area. ▪ Implementing measures to reduce the presence of standing water onsite through environmental controls and source reduction to avoid the creation of new breeding grounds. ▪ Ensuring appropriate food preparation and monitoring measures are in place. ▪ The workforce will be provided with access to selected treatment at health facilities at or near the Project Site as deemed necessary for this Project. The requirements for these health facilities should be based on a risk assessment considering access to existing health facilities and travel time to facilities that offer international standards of care. Access to health care should include direct employees, and sub-contractors working on site. ▪ Pre-employment screening protocols will be put in place within the framework of equal opportunities and non-discrimination. This should include pre-employment medicals and follow up medicals as appropriate. The screening protocols should consider heath conditions related to the nature of the work undertaken, employee residential details and legal requirements. Workers		Disciplinary procedures for workers who contravene the Code of Conduct		

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	should not be denied employment on the basis of the outcomes of the screening but should be provided treatment or alternative roles as appropriate. ▪ The Project should prepare and implement a Communicable Disease Management Plan during the construction phase. This plan should be explained clearly to the workforce. ▪ No recruitment is permitted on the construction site. This will serve to prevent in migration of work seekers from outside the local area.				
Traffic Impacts (*Section 9.1.9*)	▪ In consultation with the Rwanda Transport Development Agency (RTDA) and the management of KSEZ, develop and implement a TMP covering the routes to be used by the contractor vehicles, vehicle safety, speed limits on roads, driver and passenger behaviour, use of drugs and alcohol, hours of operation, rest periods and location of rest stops, and accident reporting and investigations. ▪ Prepare and implement an appropriate community GRM. The GRM should be communicated to all the local community members and neighbours around the KSEZ. ▪ As much as possible, avoid transportation of Project equipment and materials through busy trading centres and towns by using by-passes as appropriate. ▪ Regularly maintain Project vehicles and equipment as per the manufacturers' recommendations.	Contractor in liaison with the Project Proponent and Rwanda Police	Incident records Records of complaints TMP Grievance mechanism in place, where traffic incidents are recorded and addressed	Monthly	Internal costs
Labour and Working Conditions (*Section 9.1.10*)	**OH&S Management System** ▪ The contractor should develop and implement an Occupational Health and Safety Management System in line with good industry practice, including the requirements of the IFC Performance Standard PS 2, and in accordance with the Labour Code of Rwanda and the Labour law No. 66/2018. This OH&S system will need to consider hazard identification, risk assessment and control, use of PPE, incident investigation and reporting, reporting and tracking of near misses, incidents etc. The management system will also include emergency response plans that tie in with existing emergency response procedures of the	CSRL (contractual arrangements) Contractor (implementation)	Employment records and other key performance indicators (KPIs) for worker rights A record of workers' grievances (including those of third party's) Emergency Response Plan development	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	KSEZ. Roles and responsibilities for the implementation of the OH&S Plan should be clearly defined. ▪ The contractor will have a Human Resources Policy in place that adheres to the requirements of the IFC Performance Standard 2, Rwanda Law and the ILO fundamental Labour Conventions, ratified and in-force in Rwanda. The HR policy will include a Labour and Employment Plan, conditions of employment and Worker Grievance Mechanism. These requirements will also be passed on to any sub-contractors. **Contractor Management** ▪ In all contracts, explicit reference should be made to the need to abide by Rwandan law, international standards (in particular IFC PS2), ratified ILO conventions and the Proponent's policies in relation to health and safety, labour and welfare standards. ▪ As part of the contractor and supplier selection process, the CSRL will take into consideration performance with regard to worker management, worker rights, and health and safety as outlined in Rwandan law and international standards. ▪ Regular checks should be undertaken to ensure the relevant labour laws and occupational health and safety plans are adhered to at all times. ▪ All workers (including those of contractors and subcontractors) should, as part of their induction, receive training on health and safety guidelines (including awareness-raising of disease vectors) and should receive updated training routinely, as well as when undertaking new tasks, such as working at heights or working in confined spaces. ▪ Daily toolbox talks will be held with the Project workers to discuss the health and safety risks associated with the tasks at hand. ▪ A 'fitness for work' programme should be established to ensure that all employees are physically able to undertake their work without impact to their health; ▪ An occupational health and safety monitoring and surveillance programme should be established;		Induction and training documentation for all workers on site Development of a Workers' Code of Conduct		

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ Specific OHS training programmes should be provided for workers assigned to tasks associated with particular H&S risks; ▪ The provision and enforcement of use of appropriate PPE based on task based hazard analysis; ▪ Visual warning signs should be put in place, including those for the electrical and mechanical equipment safety warnings, and chemical hazard warnings; ▪ Working hours should be regulated in accordance with national legislation and international guidelines. **Workers' Rights** ▪ The Contractor should put in place hiring mechanisms to ensure no employee or job applicant is discriminated against on the basis of his or her gender, marital status, nationality, ethnicity, age, health status, religion or sexual orientation. ▪ All workers (including those of the contractor and subcontractors) will, as part of their induction, receive training on worker rights in line with Rwandan legislation to ensure that positive benefits around understanding labour rights are enhanced. This process will be formalised within the Code of Conduct that will be provided by the contractor. ▪ All workers (including those of the contractor and subcontractors) will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work. ▪ The contractor will put in place a worker grievance mechanism that will be accessible to all workers, whether permanent or temporary, or directly or indirectly employed. The worker grievance mechanism shall be open to all the Project workers in the event that their grievance is not adequately resolved by their direct employer. Workers will also have access to CSRL's grievance management system, to raise any issues with their employer.				

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ All workers (including those of the contractor and subcontractors) will have access to training on communicable diseases and STDs and community interactions in general. This training will be developed in collaboration with local health institutions. ▪ Surveillance and assurance that no children or forced labour is employed directly by the contractor, and to the extent possible by third parties related to the Project and primary suppliers where any such risk may exist. Mitigation measures related to human rights violation are presented below: ▪ Labour rights in the supply chain and contractors- The risk of non-observance of labour laws (including freedom of association, health and safety, non-discrimination, regular payment of wages, working hours, overtime, rest or leave by construction contractors and/or suppliers of materials or services) can be mitigated by: ▪ The screening of contractors and suppliers on the basis of whether they are able to comply with the Project's commitments and policies. ▪ Monitoring and evaluation visits to contractors and suppliers to verify compliance with company policies ▪ Formal induction on company policies for all appointed contractors and supplier sensitisation programme ▪ Implementation of a worker grievance system *Management of Casual workers* ▪ Workers shall receive regular and recorded Health & Safety training, and such training shall be repeated for new or reassigned workers. This is particularly important for casual workers since their recruitment will generally be irregular depending on availability of tasks where they are needed, and their tasks will also vary from time to time as the construction process progresses. ▪ All workers shall be provided with written and understandable information about their employment conditions including expected working hours, wages and				

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	health and safety requirements before they enter employment, even if they are to be engaged for a few days. ▪ Wages and benefits paid for a standard working day for casual workers shall as a minimum be pro-rated minimum monthly wage salary per Kenya's minimum wage requirements. For instance, the recommended minimum wage for a general worker in Mombasa is KES 653.10 per day (The Regulation of Wages (General) (Amendment) Order, 2018, Legal Notice Number 2). ▪ The same laws regarding rest days, working hours and overtime shall apply to casual workers as contracted workers per Kenyan labour laws. ▪ In the event of a work accident resulting in (i) permanent incapacity (ii) temporary incapacity or (iii) fatal injury leading to death of a casual worker, medical insurance and compensation shall be provided for their treatment, and wages based on average monthly earnings shall paid per Kenyan labour law as would apply to a contracted worker. Where the services of a casual worker are required for more than a period of one month (continuous) or is required to performs work which cannot reasonably be expected to be completed within a period, or a number of working days amounting in the aggregate to the equivalent of three months or more, such a worker shall be engaged as a contract worker in line with the requirements of Section 37 of Kenyan' Employment Act, 2007 (Revised in 2012).				
Community Health, Safety and security Risks	**Management System** ▪ The contractor should develop and implement a Community Health, Safety and Security Management System in line with good industry practice, including the requirements of the IFC Performance Standard PS 4. **Contractor Management** ▪ A Worker Code of Conduct should be developed for all project personnel that include guidelines on worker-worker interactions, worker-community interactions and development of personal relationships with members of the local communities. As part of the Worker Code of Conduct, all project personnel should be	CSRL (contractual arrangements) Contractor (implementation)	Development of a Workers' code of conduct Inclusion of community requirements in any new Health and Safety Plans.	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	prohibited from engaging in illegal activities including any form of gender based violence and harassment, the use of commercial sex workers and transactional sex. There should be a zero-tolerance for the sale, purchase or consumption of drugs and alcohol; as well as involvement in gambling and fighting. Anyone caught engaging in illegal activities will be subject to disciplinary proceedings. If workers are found to be in contravention of the Code of Conduct, which they will be required to sign at the commencement of their contract, they will face disciplinary procedures that could result in dismissal. ▪ The development and implementation of vector borne policies and information documents for all workers directly related to the project. The information document will address factual health issues as well as behaviour change issues around the transmission and infection of vector borne diseases such as ▪ Ensure sufficient health services are available to meet the day to day needs of Project personnel without impacting on access to health care for communities. This will include the provision of a health clinic with trained medical personnel at construction camps or sites. ▪ Management of security providers in line with the Voluntary Principles on Security and Human Rights. The Voluntary Principles guide companies in maintaining the safety and security of their operations within an operating framework that ensures respect for human rights and fundamental freedoms. ▪ Implement and disseminate information on the Grievance Mechanism. The grievance mechanism will provide a clear process for informing stakeholders of the process for reporting complaints about security personnel and addressing any such complaints in a timely manner. ▪ Specifically related to GBVH, the Project can take action and respond to reports of GBVH by integrating measures into existing systems. This can be done by: ▪ strengthening leadership and company culture, so that GBVH risks are understood, clear and consistent messages are communicated, necessary partnerships are developed,		A record of community incidents, emergency events and responses. Records of inductions such as health awareness trainings Records of community grievances A developed Security Management Plan		

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	inclusive organisational structures are developed, and adequate resources are invested ▪ developing and communicating policies and codes of conduct that define GBVH, set out prevention and response measures and outline behaviours that are not tolerated, with clear links to sanctions and disciplinary procedures ▪ strengthening recruitment and performance assessments so that they address GBVH risks and enable fair and transparent decision-making on hiring, promotions and performance-related pay ▪ delivering training and awareness raising, both internally among workers and externally among communities and service users, providing essential information and enhanced training for those with specific responsibilities for GBVH prevention and response ▪ working with contractors and suppliers to address GBVH through procurement processes, contract selection and negotiation and regular engagement along the supply chain ▪ improving the physical design of worksites and service delivery locations, with safety assessments to identify potential GBVH hotspots for workers, service users and community members. **Plans to develop** ▪ Development of a Security Management Plan that will set out the process for recruitment and management of security personnel. This will include: ▪ conducting background checks on security personnel to ensure that they have no records of human rights abuse; ▪ provision of training on upholding community and employee rights and appropriate use of force; and ▪ provisions for investigating any unlawful or abusive behaviour and appropriate disciplinary action, including potential termination of contract. Unlawful and abusive acts will be reported to the appropriate public authorities.				

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ Develop Emergency Prevention, Preparedness and Response Plan that considers incidents that could impact or involve the surrounding community				
Operations Phase					
General	▪ Develop and implement an operational phase EHS Management Plan meeting the conditions set out in the environmental authorisation, as well as this ESIA Report and lender requirements.	CSRL	An effective operations phase EHS Plan	Developed once and implemented throughout the operations phase	Internal costs
Impacts on Local Air Quality (*Section 9.2.1*)	▪ Locate the generator as far as possible away from people, both employees and working areas of neighbouring plots. ▪ Ensure that the generator uses best available technology and is regularly maintained as per the manufacturer's instructions. ▪ Vehicles will not be permitted to idle whilst stationary. Rather vehicles will plug into the mains power whilst docking to keep their refrigerant units going, whilst the vehicle is idle. ▪ All the customers will be encouraged to use vehicles in good mechanical condition that are regularly maintained as per the manufacturer's advice.	CSRL and operators of the various Project components	No recorded incidents or grievances to surrounding land users	Daily	No additional costs
Climate Change Impacts (GHG Emissions) (*Section 9.2.2*)	The GHG Management Plan for the facility will include: ▪ Measuring of energy and fuel use data to calculate an accurate direct carbon footprint for the facility; ▪ On the basis of the results of the carbon footprint, seek to make efficiencies in areas of high GHG emissions; ▪ Develop and implement a facility Waste Management Plan applying the waste hierarchy. **Mitigation measures against Climate Change Risk to the Project** ▪ Development of a climate risk assessment tool ▪ The risk of having an unreliable power supply can be mitigated through a transition through to decentralised, 'clean' sources of energy, which may be low emission alternatives that can also help reach emission reduction goals (solar has been integrated into the Project design). The same can be applied to the risk on the supply of fossil fuel based energy for the Project's equipment	CSRL	Appropriate GHG management plan Appropriate technology with minimal GHG emissions used. No use of outlawed or banned GHG compounds or Ozone depleting substances	Quarterly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost

	and transport. A shift towards electric drive technologies and electric mobility will help mitigate the impact of this.
	▪ Application of green infrastructure strategies to mitigate the impacts related to more intense rainfall / storm events (https://www.epa.gov/arc-x/strategies-climate-change-adaptation)
	  ▪ Use of bioretention, which is an adapted landscape feature that provides onsite storage and infiltration of collected stormwater runoff.
	  ▪ Use of a Blue Roof to hold precipitation after a storm event and discharge it at a controlled rate
	  ▪ Use of Permeable pavement to allow runoff to flow through and be temporarily stored prior to discharge
	  ▪ Use Underground storage systems to detain runoff in underground receptacles
	▪ Water utility protection mitigations that can be implemented include:
	  ▪ Flood proofing, which involves elevating critical equipment or placing it within waterproof containers or foundation systems.
	  ▪ Building water storage infrastructure thus increasing climate resilience for seasonal or extended periods of drought / low water supply
	  ▪ Diversify options for water supply and expand current sources
	  ▪ Diversifying sources helps to reduce the risk that water supply will fall below water demand. Examples of diversified source water portfolios include using a varying mix of surface water and groundwater, employing desalination when the need arises and establishing water trading with other utilities in times of water shortages or service disruption.
	  ▪ Finance and facilitate systems to recycle water (which the Project has already considered in the design)				

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
Impacts on the Noise Environment (including vibration) (*Section 9.2.3*)	▪ The Project trucks will be regularly maintained as per the manufacturers' and mechanics' recommendations. ▪ The power backup generator will be located away from sensitive receptors as much as possible. ▪ The power backup generator will be fitted with silencers based on available best technology. ▪ All Project drivers will be required to observe applicable traffic rules and regulations as per the national laws.	Project Proponent	No recorded noise-related incidents or grievances to surrounding land users Occupational noise monitoring records within the Premises Noise emissions at respective receptors not exceeding the maximum permitted limits	Monthly	Internal operations costs
Impacts on Water Resources (*Section 9.2.4*)	▪ Regularly maintain the drainage system as required. ▪ Monitor and report on water utilisation and recycle wastewater as appropriate using available technology. ▪ Any effluent to the municipal sewer to meet the requirements of the effluent discharge permit.	Project Proponent	No recorded water (quality, quantity or stormwater flow) -related incidents or grievances to surrounding land users Visual audits/spot checks Good housekeeping at the Project site Well drained Project site	Monthly	Internal maintenance costs
Wastes and Effluents (*Section 9.2.5*)	▪ A WMP will be produced for the operations phase ▪ Operations vehicles and equipment will be serviced off site at designated and approved servicing locations. ▪ The use, storage, transport and disposal of hazardous materials used for the Project will be carried out in accordance with all applicable Rwandan regulations (including the RURA	Project Proponent	An effective operations phase WMP in place No recorded grievances related to inappropriate	Monthly	Internal operations costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	Regulations governing the provision of services for hazardous waste management), and Material Safety Data Sheets (MSDS). Any hazardous wastes to be disposed of should be documented beforehand, treated as per any requirements of the MSDS sheets, and disposed of in consultation with the District Authorities and via RURA-approved waste handlers. ▪ In line with the requirements of the RURA Regulations governing the provision of services for hazardous waste management, any generated hazardous waste should be transported and managed by RURA permitted hazardous waste handlers. ▪ Any waste batteries and/or broken or discarded solar panels, should be recycled through an applicable e-waste recycler, and handled through an appropriate RURA waste contractor, certified to handle such wastes.		waste management at the Project Site Records of audits/visual inspection		
Impacts on Employment, Procurement and the Economy (*Section 9.2.6*)	▪ The Project will prioritise the recruitment of workers (unskilled, semi-skilled) from the local communities around KSEZ where available in accordance with CSRL Local Content Policy. ▪ The Project will develop a fair and transparent employment and procurement policy and processes that prevent any form of nepotism and favouritism. ▪ CSRL will develop a recruitment plan and work with local stakeholders to carry out the recruitment. ▪ Advertisements on the employment and procurement opportunities during the operations phase will be placed at the village leader's notice board. In the event that the position cannot be filled from within the Project Area, it will be advertised further county-wide and then nationally. ▪ No recruitment will take place at the entrance gates of the facility	Project Proponent Maintenance Contractor	Employment records	Preparation of Human Resources guiding documents (including recruitment guidelines) prior to construction Employment records checked monthly	Internal costs
Traffic Impacts (*Section 9.2.7*)	▪ Develop and implement a "Driving Policy" which should prohibit use of phones while driving ▪ The Project drivers will undergo the necessary driver training course and defensive driving ▪ Develop and implement an operations Phase TMP for the Project. ▪ Regularly maintain Project vehicles and equipment as per the manufacturers' recommendations.	Project Proponent and customers Maintenance Contractor	Incident records Records of complaints TMP	Quarterly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
Labour and Working Conditions (Including Occupational Health and Safety) (*Section 9.2.8*)	▪ The Project will develop and implement an operations phase Occupational Health and Safety Management System in line with good industry practice. This system should include consideration of hazard identification, risk assessment and control, use of PPE, incident investigation and reporting, reporting, training of workers on OHS risks and tracking of near misses, incidents etc. The management system should also include emergency response plans that tie into existing emergency response plans at the KSEZ. Roles and responsibilities should be clearly defined. ▪ The Project will develop a Human Resources Policy to guide labour recruitment and management. ▪ All workers will have contracts which clearly state the terms and conditions of their employment and their legal rights. Contracts will be verbally explained to all workers where this is necessary to ensure that workers understand their rights. Contracts must be in place prior to workers commencing work. ▪ Mitigation measures related to workers' rights and human rights violations are the same as presented in the construction phase management plan. ▪ All workers (including those of contractors and subcontractors) should, as part of their induction, receive training on health and safety guidelines (including awareness-raising of disease vectors) and should receive updated training routinely, as well as when undertaking new tasks, such as working at heights or working in confined spaces. ▪ Daily toolbox talks will be held with the Project workers to discuss the health and safety risks associated with the tasks at hand. ▪ A 'fitness for work' programme should be established to ensure that all employees are physically able to undertake their work without impact to their health; ▪ An occupational health and safety monitoring and surveillance programme should be established; ▪ Specific OHS training programmes should be provided for workers assigned to tasks associated with particular H&S risks; ▪ The provision and enforcement of use of appropriate PPE based on task based hazard analysis;	Project Proponent and customers	Employment records and other key performance indicators (KPIs) for worker rights A record of workers' grievances Induction documentation for all workers to include necessary items Major Hazard Installation certification for the bulk storage of ammonia will be attained. Annual DOSH and fire safety audits will be conducted by appropriately registered and independent consultants	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	▪ Visual warning signs should be put in place, including those for the electrical and mechanical equipment safety warnings, and chemical hazard warnings; ▪ Working hours should be regulated in accordance with national legislation and international guidelines. ▪ Annual DOSH and fire safety audits will be conducted by appropriately registered and independent consultants. ▪ Major Hazard Installation (MHI) certification for the bulk storage of ammonia. As part of the of the MHI certification, a Quantitative Risk Assessment (QRA) will be undertaken to develop risk isopleths outlining the offsite risk and inform the acceptability of the risk on a scientific basis. (Guided by WB EHS Guideline 1.5 Hazardous Materials Management).				
Community Health, Safety and security Risks (Section 9.2.8)	**Management System** ▪ The Project should update and implement a Community Health, Safety and Security Management System in line with good industry practice, including the requirements of the IFC Performance Standard PS 4. **Employee Management** ▪ The Worker Code of Conduct to be developed for the construction phase should be updated for Project employees in the operations phase. ▪ The development and implementation of vector borne disease policies and information documents for all workers directly related to the project. ▪ The information document will address factual health issues as well as behaviour change issues around the transmission of vector borne and communicable diseases e.g. Malaria ▪ Health awareness training will be provided to all employees. This will include knowledge and awareness around how communicable diseases are transmitted, diseases to be aware of, their symptoms and the benefits of early treatment. Health awareness training should be provided as part of workers	CSRL and customers	Update and implementation of a Community Health, Safety and Security Management System Development of a Workers' code of conduct Inclusion of community requirements in any new Health and Safety Plans. A record of community incidents, emergency events and responses.	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	induction. Training will be done in line with the policies developed as discussed in the point above. ▪ Ensure sufficient health services are available to meet the day to day needs of Project personnel without impacting on access to health care for communities. First aid training should be provided to Project personnel. ▪ Implement and disseminate information on the Grievance Mechanism. The grievance mechanism will provide a clear process for informing stakeholders of the process for reporting complaints about security personnel and addressing any such complaints in a timely manner. **Traffic-Related Mitigations** ▪ Develop and implement a TMP covering the routes to be used by the contractor vehicles, vehicle safety, speed limits on roads, minimum driver qualifications and experience, driver and passenger behaviour, use of drugs and alcohol, hours of operation, rest periods and location of rest stops, and accident reporting and investigations. ▪ Prepare and implement an appropriate community Grievance Redress Mechanism (GRM). The GRM should be communicated to all the local community members and neighbours around the CIP. ▪ As much as possible, avoid transportation of Project equipment and materials through busy trading centres and towns by using by-passes as appropriate. ▪ Regularly maintain Project vehicles and equipment as per the manufacturers' recommendations **Plans to develop / update** ▪ Develop a Security Management Plan for the operational phase ▪ Update the Emergency Prevention, Preparedness and Response Plans and associated procedures. In collaboration with the local and regional Government and local emergency providers and local health care facilities,		Records of inductions such as health awareness trainings Records of community grievances An updated Security Management Plan and associated procedures is in place An updated Emergency Prevention, Preparedness and Response Plans and associated procedures are in place		

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
Supply Chain Risks (*Section 4.8*)	▪ CSRL will require all customers to have valid certifications for their respective sectors where applicable and licensed/permitted by the relevant government authorities. ▪ For every customer, CSRL will conduct a due diligence such as through completion of a KYC form in which all the relevant certifications and licenses/permits will be checked. ▪ All the goods received at the facility will be scanned to ascertain their contents and barcoded for the duration of the storage at the facility.	CSRL's Logistics Manager in liaison with the Commercial Heads for the various sectors.	All received and stored goods compliant with applicable standards (both local and international)	Monthly	Internal costs
Risks associated with handling and storage of health products/ pharmaceuticals (*Sections 4.7.2 and 4.7.3*)	▪ There will be dedicated chambers/rooms for the storage of pharmaceuticals at -25^{0}C. ▪ There will be blast freezing rooms capable of reducing the product temperature by - 18°C in a 24-hour period on average and chilled rooms capable of reducing warm product to chilled temperatures (above 0 °C) which will be used where needed. ▪ The goods will be stored in stacked racks within pallets. ▪ A computerised Warehouse Management System which will include scanning and barcoding of all goods which will enable complete live tracking of each pallet into and out of the facility and avoidance of the risk of mixing different products. ▪ Temperature-controlled loading bays will be used to avoid temperature fluctuations during loading and offloading. ▪ The handling and storage of pharmaceuticals will be organised to meet the requirements of relevant international requirements such as WHO's GDP, GSP/GDP and GWP. ▪ Where needed, specific detailed plans or procedures will be prepared for efficient management of pharmaceutical products.	CSRL's Commercial Head for pharmaceuticals	Appropriate handling and storage of pharmaceutical products Maintenance of quality standards for pharmaceutical products	Monthly	Internal costs
Risks associated with food handling and storage (*Sections 4.7.2 and 4.7.3*)	▪ There will be dedicated chambers/rooms for the storage of various foods and food products at the required temperatures. ▪ There will be blast freezing rooms capable of reducing the product temperature by - 18°C in a 24-hour period on average and chilled rooms capable of reducing warm product to chilled temperatures (above 0 °C) which will be used where needed. ▪ The goods will be stored in stacked racks within pallets. ▪ A computerised Warehouse Management System which will include scanning and barcoding of all goods will enable complete	CSRL's Commercial Heads for the various food sectors (agriculture, meat, poultry, seafood, food manufacturing	Appropriate handling and storage of various foods and food products Maintenance of quality standards for the various food and food products	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	live tracking of each pallet into and out of the facility and avoidance of the risk of mixing different products. ▪ Temperature-controlled loading bays will be used to avoid temperature fluctuations during loading and offloading. ▪ The handling and storage of foods and food products will be organised to meet the requirements of relevant international requirements such as FSSC 22000, SQF, HACCP, BRCGS/BRC and ISO 9001. ▪ Where needed, specific detailed plans or procedures will be prepared for efficient management of various foods and food products.	and supermarket/ QSR chains			
All Project Phases					
Accidental Leaks and Spills (*Section 9.3.1*)	**General Leaks and Spills Management** ▪ All Project equipment and machinery will be properly maintained as per the manufacturer's recommendations. In particular, the status of fuel and oil tanks will be checked. ▪ At the start of every work day, Project vehicles and equipment will be checked for spills and leakages. ▪ Project equipment and machinery will be serviced off site. ▪ Fuel, oil and used oil storage areas will be contained in bunds of 110 percent capacity of the stored material. Fuels will be stored in above-ground storage tanks. ▪ Spill containment and clean up kits will be available onsite and clean-up from any leakage or spill will be appropriately contained and disposed of. **Specific Management Measures for Use of Ammonia as a Refrigerant** ▪ Maintenance work at ammonia refrigeration systems requiring welding, soldering or cutting must be performed with extreme caution: existing oil mists can lower the explosion limit of ammonia/air mixtures. Ammonia systems should; therefore, be purged with air or a non-flammable gas prior to starting the welding work in order to remove residual ammonia. ▪ Early leakage detection through installation of an automatic and specific chemical detection system depending on available	Project Proponent Maintenance Contractor	An appropriate Spill Management Plan Maintenance Schedule Maintenance records Records of accidental leaks/ spillages	Monthly	Internal costs

Issue	Mitigation/Management Measure	Responsibility for Implementation	Completion Indicator	Frequency of Monitoring	Cost
	technology as well as smell detection by the Project workers. In particular, this will require training of all the operations phase Project workers on early detection of ammonia smell. ▪ Conduct regular maintenance of both the refrigeration system and the leakage detection technology. ▪ Prepare an emergency response plan for implementation in case of major leakages or explosion.				

10.3 Topic Specific Management Plans

The following Sections present the specific management plans foreseen for construction and operations, based on the outcomes of the impact assessment. Table 10-2 presents a summary of the topic specific management plans that will be prepared for the Project by the different directly involved parties. Please note that this is in addition to the SEP which has been prepared during the ESIA process (**Appendix C**).

Table 10-2 Summary of Topic Specific Management Plans

CSRL Policies/Plans for Construction Phase	Contractor Management Plans and Procedures for Construction Phase	CSRL Operational Management Plans and Procedures
▪ Supplier Code of Conduct ▪ Local Content Policy ▪ Equal Opportunities and Diversity Policy ▪ Contractor General HSES requirements ▪ Security Management Plan ▪ EPPRP ▪ Environmental and Social Management System	Contractor's Construction Environmental Management Plan (CEMP) including the following (to a minimum): ▪ Air Quality Management Plan ▪ Noise Management Plan ▪ COVID-19 Management Plan ▪ EPRP ▪ Spill Response Procedure ▪ OHS Plan ▪ WMP ▪ Water Management Plan ▪ TMP ▪ Workforce Management Plan/ Human Resource Policy Manual ▪ Security Management Plan	▪ Corporate E&S Policies ▪ ESMS ▪ OHS Management System ▪ WMP ▪ TMP ▪ GHG Management Plan ▪ Security Management Plan ▪ EPPRP

Outlined below is a summary of the contents of the key management plans. It is important to note that all the topic specific management plans will need to tie into the wider KSEZ Management Plans for the various components.

10.3.0 Waste Management Plan

The WMP will be developed to manage solid and liquid wastes and to avoid any discharges into the soil or water for both the construction and operation phases. It will establish procedures for the storage, collection and disposal of waste, including liquid and solid waste, as well as hazardous and non-hazardous waste.

The WMP will provide for the following:

- Compliance with the National Sanitation Policy (2016);
- Compliance with the Organic law (No 04/2005 of 08/04/2005)
- Compliance with Environmental Regulations (Collection, Storage, Treatment, Use and Disposal of Solid waste).
- Compliance with Environmental Protection (Standards for Hazardous waste) Regulations.
- Compliance with Environmental Regulations (Management and Disposal of Wastewater).
- Compliance with Environmental Protection (Standards of Effluent Discharge Permit) Regulations

- Compliance with the RURA Regulations governing the provision of service for hazardous waste management;
- Compliance with the RURA regulations governing liquid waste collection and transportation;
- Outline of waste characteristics and sufficient capacity for managing different waste streams and waste quantities; and
- The WMP will be developed following CSRL's Policies and will consider IFC PS 3.

Furthermore, it will contribute to ensuring that the capacity and the nature of waste collection and treatment systems are in line with the wastes to be managed.

The overall objective is to minimise impact of waste generated during the construction and operational phases through the following:

- minimise the amount of waste that is generated;
- maximise the amount of waste that is recovered for recycling – including segregation of recyclable wastes at source;
- ensure any hazardous wastes (e.g. used oils) are securely stored and transferred to appropriate facilities;
- avoid dust impacts from handling of construction wastes;
- ensure all wastes are properly contained, labelled and disposed of in accordance with local regulations; and
- ensure waste is disposed of in accordance with the waste management hierarchy.

10.3.1 Emergency Prevention, Preparedness and Response Plan (EPPRP)

The EPPRP will assemble and describe in one document the site-specific actions and procedures to be taken in emergency situations occurring during construction and operation phases.

The objective of the EPPRP is to be prepared to respond to process upset, accidental, and emergency situations in a manner appropriate to the operation risks and to prevent their potential negative consequences. The EPPRP will clearly make a distinction between all the project phases, since the actions to be undertaken will be different during the construction, operation and decommissioning phases.

The content of the EPPRP can be summarized as follows:

- Rwandan legal provisions on civil emergencies;
- The identification of the potential hazards (i.e. natural disasters, civil disturbances, fire or explosions, malfunctioning of the devices during the processes, pressure issues, etc.) related with the Project and its construction and operation and the possible impact to the environment and health;
- Identification of the governmental authorities, the media and other relevant stakeholders to be notified and description of the procedures for communicating with them;
- The necessary measures to limit human and environmental consequences associated with Project related accidents; co-operation between the Contractor, local and central authorities, as well as the local community;
- Safety technical measures to be described and appropriate measures to protect the public safety or property from potential hazards;
- Preliminary description of the organization structure, and explain interactions with Project and operation procedures;

- Preliminary identification of the system and procedures for providing personnel refuge, evacuation, rescue, medical treatment and repatriation; and
- Preliminary description of training activities and the arrangement for training response teams and for testing emergency systems and procedures.

Finally, the Plan shall include provisions for the training of all workers on the emergency response procedures and will include procedures related to communication to stakeholders and community improvement opportunities.

10.3.2 Water Management Plan

The Water Management Plan will have the following objectives:

- Monitor water use: The Plan will set procedures for estimating water used by the Project, identifying activities that use this resource, and will document water use reporting needs.
- Minimise water use: The Plan will provide a series of measures to be considered for minimising the use of water;
- Document water sources; and
- Record all communications with Water Authorities.

The Water Management Plan will be developed following CSRL's policies and will consider all the relevant IFC PSs.

Finally, the Plan will include provisions for the training of all workers on how to use water efficiently.

10.3.3 Traffic Management Plan (TMP)

A TMP will be developed to manage traffic attributed to the Project, minimise traffic disruption and road user delay and provide for the on-going safety of road users, including pedestrians and cyclists. All of the traffic related impacts described previously can be mitigated very effectively by the implementation of standard best practices in terms of environmental controls and management practices during construction. These measures will be detailed in the TMP, which will describe in detail the measures that the Contractor and Project Proponent will implement during the construction and operation phases of the Project, respectively.

The key issues that will be addressed by the TMP in terms of mitigation measures will include:

- Access to construction areas;
- Routing of construction traffic;
- Prevention of road user delay;
- Temporary traffic control and management;
- Reducing the probability of traffic accidents and improving safety for road users and others;
- Preventing and remedying road degradation;
- Road crossings; and
- Parking facilities.

The Contractor shall regularly update their TMP as their construction methods are developed and vehicle movement requirements are identified in detail. The Contractor will consult with the principal representative of any communities that will suffer a significant increase in traffic in order to develop awareness of the mitigation measures within the TMP.

A TMP is important both in ensuring the safety of construction personnel and local communities. The TMP is intended to be a 'live' document and its traffic management principles will form the basis for

subsequent detailed construction traffic management arrangements between the appointed Contractor and the road authorities.

The TMP will include the following minimum requirements:

- Levels of development related to traffic that will use this road network;
- Identification of key sensitivities along proposed access routes;
- Measures to provide for the on-going safety of road users, including pedestrians and cyclists;
- Project driver training requirements with respect to road safety and environment;
- Project Schedule;
- Roles and responsibilities for implementation of the TMP;
- Measures to prohibit "off-route" driving;
- Speed limits and methods of enforcement;
- Means to inform the community of traffic risks;
- Vehicle equipment;
- Vehicle maintenance and refuelling locations;
- Inspection, auditing and reporting; and
- Driver competency.

10.3.4 Health and Safety Management Plan

The Health and Safety (H&S) Management Plan will be a tool that will provide a framework for the following:

- Planning for Health and Safety;
- Accident and Incident Investigation; and
- Health and Safety Auditing.

The H&S Management Plan will be developed following all the relevant IFC PSs. The H&S Management Plan will include, at a minimum, the following elements:

- CSRL's HSE Policy.
- H&S Organisation: detailed organisation chart and description of roles and responsibilities associated with managing H&S. The organisation proposed in the Plan will consider the competency of the proposed professionals and will provide mechanisms to ensure co-operation and communication between the H&S management team members.
- H&S Standards, including site safety inductions; hazards identification and risk assessment, including task analysis and construction hazards; H&S targets, and a procedure for safety performance evaluation and review; emergency procedures; toolbox meeting procedure; site visit registers; and MSDS sheet register.
- Accidents and Incidents, including: definitions; reporting and registering procedures; root-cause analysis.
- H&S Auditing, including the following: auditing plan; setting audit objectives and measuring H&S performance; site safety inspection checklists and first-aid equipment checklist.

The Plan will include provisions for the training of all workers on H&S and will include procedures related to communication to stakeholders and community improvement opportunities.

10.3.5 Supplier Code of Conduct

The Supplier Code of Conduct will set out the CSRL's expectations of worker behaviour (also applicable to contractors), consistent with the national labour laws and international good practice standards. Specifically, the Workers Code of Conduct will be explicit on the following:

- The scope of the Workers Code of Conduct;
- A requirement by all the Project employees to comply with all the Contractor's rules and regulations;
- Prohibited and restricted activities at the work place like drug abuse;
- Respect at the work place including respect for other Project workers as well as the local community members;
- Protection of Project property;
- Professionalism;
    - Working hours,
    - Personal appearance,
    - Leave policy,
    - Absenteeism and tardiness,
    - Conflict of Interest,
    - Pronouncement on giving and receiving gifts,
    - Confidentiality, and
    - Communication.
- Contractor's pronouncement on all forms of harassment;
- Grievance management; and
- Discipline of workers who bleach the requirements of the Workers' Code of Conduct.

10.4 Roles and Responsibilities

10.4.0 Contractual Obligation

In order to ensure that this ESMMP and/or derivatives thereof are enforced and implemented, these documents must be given legal standing. This shall be achieved through incorporating the ESMMP and/or derivative documents as an addendum to the contract documents for the Contractor and sub-contractors (if any) and specifying that the requirements of this ESMMP and/or derivative documents apply and must be met. This will ensure that the obligations are clearly communicated to Contractors.

10.4.1 Responsibilities and Duties

10.4.1.0 The Project Proponent (CSRL)

The Project Proponent has overall responsibility for ensuring that the construction and development of the Project is undertaken in an environmentally sound and responsible manner, and in particular, reflects the requirements and specifications of the ESMMP and recommendations from the relevant authorities.

The responsibilities of the Project Proponent will include:

- Appoint or designate a suitably qualified Project Manager to manage the implementation of the proposed Project;

- Appoint the Project Contractor;
- Establish and maintain regular and proactive communications with the designated/appointed Project Manager (PM) and Environmental Compliance Officer (ECO); and
- Ensure that the ESMMP is reviewed and updated as necessary.

Reporting Structure

The Project Proponent will liaise with and/or take instruction from the following:

- Government/regulatory authorities such as REMA and RDB; and
- General Public.

10.4.1.1 Project Proponent's Project Manager (PM)

The primary role of the PM is to ensure that the Contractor and Project Proponent's staff complies with the environmental specifications in the ESMMP. The PM shall further:

- Oversee the general compliance of the Contractor with the ESMMP and other pertinent site specifications; and
- Liaise with the Contractor and ECO on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences.

In addition, the PM shall:

- Designate or appoint a suitably qualified Environmental Manager (EM) that will manage all environmental aspects on behalf of the PM and the Project Proponent;
- Review and approve Method Statements produced by the Contractor in connection with the ESMMP;
- Assume overall responsibility for the effective implementation and administration of the ESMMP;
- Be familiar with the contents of the ESMMP, and his/her role and responsibilities as defined therein;
- Ensure that the ESMMP is included in the Contractor's contract;
- Communicate to the Contractor, verbally and in writing, the advice of the ECO and the contents of the ECO reports;
- In conjunction with the Construction Supervisor; undertake regular inspections of the Contractor's site as well as the installation works in order to check for compliance with the ESMMP in terms of the specifications outlined therein. Inspections shall take place at least once a week and copies of the monitoring checklist contained in the file;
- Review and approve drawings produced by the Contractor or professional team in connection with, for example, the construction site layout, access/haul roads, etc.;
- Issue site instructions giving effect to the ECO requirements where necessary;
- Keep a register of all complaints and incidents (spills, injuries, legal transgressions, etc.) and other documentation related to the ESMMP;
- Report to the ECO any problems (or complaints) which cannot first be resolved in co-operation with the Contractor(s);
- Implement recommendations of possible audits;
- Implement Temporary Work Stoppages as advised by the ECO, where serious environmental infringements and non-compliances have occurred;

- Facilitate proactive communication between all role-players in the interests of effective environmental management; and
- Ensure that construction staff is trained in accordance with requirements of the ESMMP.

Reporting Structure

The PM will report to the Project Proponent (CSRL). Weekly meetings between the contractor and Project Proponent, and monthly reporting will be required.

10.4.1.2 Project Proponent's Environmental Control Officer (ECO)/ EHS Officer

Through the PM, the Project Proponent will appoint an ECO/EHS Officer to monitor and oversee implementation of the ESMMP for the proposed construction works. The ECO/ EHS Officer is given authority to ensure that the ESMMP is fully implemented and that appropriate actions are undertaken to address any discrepancies and non-compliances.

The role of the ECO/EHS Officer shall be to:

- Act as site 'custodian' for the implementation, integration and maintenance of the ESMMP in accordance with the contractual requirements;
- Ensure successful implementation of the ESMMP; and
- Ensure that the Contractor, his employees and/or sub-contractors receive the appropriate environmental awareness training prior to commencing activities.

The responsibilities of the ECO/EHS Officer will be to:

- Liaise with the PM on the level of compliance with the ESMMP achieved by the Contractor on a regular basis for the duration of the contract;
- Advise the PM on the interpretation and enforcement of the Environmental Specifications (ES), including evaluation of non-compliances;
- Supply environmental information as and when required;
- Review and approve Method Statements produced by the Contractor, in conjunction with the PM;
- Demarcate particularly sensitive areas (including all No-Go areas) and to pass instructions through the PM concerning works in these areas;
- Monitor any basic physical changes to the environment as a consequence of the construction works according to an audit schedule;
- Attend regular site meetings and Project steering committee meetings;
- Undertake regular monthly audits of the construction works and to generate monthly audit reports. These reports are to be forwarded to the PM who will communicate the results and conclusions with the Project Proponent;
- Communicate frequently and openly with the Contractor and the PM to ensure effective, proactive environmental management, with the overall objective of preventing or reducing negative environmental impacts and/or enhancing positive environmental impacts;
- Advise the PM on remedial actions for the protection of the environment in the event of any accidents or emergencies during construction, and to advise on appropriate clean-up activities;
- Review complaints received and make instructions as necessary; and
- Identify and make recommendations to minor amendments to the ESMMP as and when appropriate.

Reporting Structure

The ECO will report to the PM, who in turn will report to the Project Proponent.

10.4.1.3 Contractor

The Contractor will implement the development. The Contractor will be contractually required to undertake their activities in an environmentally responsible manner, as described in the ESMMP.

The role of the Contractor shall be to:

- Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
- Preserve the natural environment by limiting any destructive actions on site;
- Ensure that suitable records are kept and that the appropriate documentation is available to the PM;
- Take into consideration the legal rights of the individual Landowners, Communities and Project Proponent's staff;
- Ensure quality in all work done, technical and environmental;
- Underwrite the Project Proponent's Environmental Policy at all times, and
- Ensure that all sub-contractors and other workers appointed by the Contractor are complying with and implementing the ESMMP during the duration of their specific contracts.

The responsibilities of the Contractor will be to:

- Discuss implementation of and compliance with this document with staff at routine site meetings;
- Designate, appoint and/or assign tasks to personnel who will be responsible for managing all or parts of the ESMMP. The Contractor must appoint or designate a Safety, Health, Environment and Quality Officer (SHEQO) to monitor daily implementation of the ESMMP on the Contractor's behalf as a minimum;
- Monitor environmental performance and conformance with the specifications contained in this document during site inspections;
- Report progress towards implementation of and non-conformances with this document at site meetings with the PM;
- Advise the PM of any incidents or emergencies on site, together with a record of action taken;
- Report and record all accidents and incidents resulting in injury or death; and
- Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations.

Reporting Structure

The Contractor will report to the PM and ECO, as and when required.

10.4.1.4 Sub-contractors

The Contractor may from time to time appoint sub-contractors.

The role of the sub-contractors shall be to:

- Perform certain services and/or provide certain products on behalf of the Contractor. The sub-contractors will be contractually required to undertake their activities in an environmentally responsible manner, as described in the ESMMP; and
- Ensure environmental awareness among employees so that they are fully aware of and understand the Environmental Specifications and the need for them.

The responsibilities of the sub-contractor will be to:

- Be familiar with the contents of the ESMMP, and his/her roles and responsibilities as defined therein;
- Comply with the Environmental Specifications in the ESMMP and associated instructions issued by the Contractor to ensure compliance;
- Notify the Contractor verbally and in writing, immediately in the event of any accidental infringements of the Environmental Specifications and ensure appropriate remedial action is taken; and
- Notify the Contractor, verbally and in writing at least 10 working days in advance of any activity he/she has reason to believe may have significant adverse environmental impacts, so that mitigation measures may be implemented timeously.

Reporting Structure

Sub-contractors will report to and receive instructions from the Contractor.

10.4.2 Monitoring

10.4.2.0 Undertaking Audits

The PM shall appoint a qualified and experienced ECO/EHS Officer to ensure implementation of and adherence to the ESMMP.

The ECO/EHS Officer shall conduct audits to ensure that the system for implementation of the ESMMP is operating effectively. The audit shall check that a procedure is in place to ensure that:

- The ESMMP and the Method Statements being used are the up-to-date versions.
- Variations to the ESMMP, Method Statements and non-compliances and corrective actions are documented.
- Emergency procedures are in place and effectively communicated to personnel.

The audit programme shall consist of the following at a minimum:

- First audit no later than 1 month after construction commences;
- Thereafter audits at monthly intervals, at a minimum;
- An audit one week prior to practical completion of the Project is granted; and
- A post construction audit within 1 week after the Contractor has moved off site.

The contractor and the Project Proponent will also be required to meet at least weekly to discuss and check progress of implementing the ESMMP.

10.4.2.1 Compliance with the ESMMP

The Contractor and/or his agents are deemed not to have complied with the ESMMP and remedial action if:

- There is evidence of contravention of the ESMMP clauses within the boundaries of the site or extensions;

- Environmental damage ensues due to negligence; and
- The Contractor fails to comply with corrective or other instructions issued by the PM, within a period specified by the PM.

11. CONCLUSIONS AND RECOMMENDATIONS

11.0 Conclusions

The ESIA process undertaken has identified and assessed a range of potential impacts to the physical, biological, and socio-economic environments. Where impacts have been identified, mitigation measures to manage those impacts have been provided in this ESIA Report. All the identified impacts are either of moderate or minor significance, even prior to the application of the appropriate mitigation measures. With proper implementation of the recommended mitigation/management measures, the significance of the residual impacts will be reduced to a minor or negligible level which are mainly attributed to the fact that:

- The Project Site is located within the KSEZ, which is zoned industrial/commercial, and has already been developed.
- The Project Site is located within a planned industrial area and will be surrounded by other industrial projects, and thus fits within the land use planning of the Project Area.
- The site has no biodiversity value, or value for agriculture, already being heavily modified.
- Given the already KSEZ set up, there are no settlements or economic activities that are carried out from the Project footprint other than for development and use for industrial activities. There are also no settlements in the immediate vicinity of the Project Site.
- The land for KSEZ phase I in which these plots are located was acquired by GoR dating back to 2006 and passed on to the PEZ in 2008 to install necessary infrastructure and manage it. Given the long period of time since its acquisition (over 15 years ago) and the number of industries and activities already completed in phase 1 of the KSEZ and already expanding to Phase 2, no land related issues are known to be outstanding in relation to the land for Phase 1 of the KSEZ.
- Stakeholders consulted as part of the EIA process were supportive of the Project; however, they requested that potential negative impacts be effectively managed.
- There is a large local labour pool (of mainly unskilled and semi-skilled workers) in the Project vicinity; mainly who have been involved in the construction of other industrial projects within the KSEZ.

11.1 Recommendations

ERM is confident that every effort will be made by the Propjet Proponent and Contractor to accommodate the mitigation measures recommended during the ESIA process to the extent that is practically possible, without compromising the economic viability of the Project or having a lasting impact on the environment. The implementation of the mitigation measures detailed in *Chapters 9* and listed in the ESMMP (*Chapter 10*) will provide a basis for ensuring that the potential positive and negative impacts associated with the establishment of the development are enhanced and mitigated, respectively, to a level which is deemed adequate for the development to proceed.

In summary, based on the findings of this assessment, ERM finds no reason why the Project, should not be authorised, contingent on the mitigations and monitoring for potential environmental and socio-economic impacts as outlined in the ESMMP.

REFERENCES

CCSEAF, 2020: Environmental and Social Management System Manual for the ARCH Cold Chain Solutions East Africa Fund LP

EIB, 2020: EIB Project Carbon Footprint Methodologies; Methodologies for the Assessment of Project GHG Emissions and Emission Variations.

IFC, 2007: Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets.

IFC, 2012: IFC Performance Standards PS on E&S Sustainability.

IFC, 2012: Policy on Social and Environmental Sustainability.

National Institute of Statistics of Rwanda, Republic of Rwanda: EICV3 District Profile, Kigali – Gasabo District

USAID, 2018: Greenhouse Gas Emissions in Rwanda.

APPENDIX A ERM AND EARTH SYSTEMS REGISTRATION AND PRACTICING LICENCES

FORM 5 (r.14(4))

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

CERTIFICATE OF REGISTRATION AS AN ENVIRONMENTAL IMPACT ASSESSMENT/ AUDIT EXPERT

Certificate No: NEMA/EIA/RC/572

Application Reference No: NEMA/EIA/ER/1915

This is to certify M/s **Environmental Resource Management East Africa Ltd(ERM)** of P.O Box 100798 - 00101 Nairobi (Address) has been registered as an Environmental Impact Assessment Expert in accordance with the provisions of the Environmental Management and Coordination Act and is authorized to practice in the capacity of a Lead Expert/Associate Expert/Firm of Experts (Type) **Firm of Experts**

Expert Registration No: **7264**

Issued Date : **9/16/2014**

Signature

(Seal)

Director-General
The National Environmental Management Authority

P. T. O.

ISO 9001 : 2008 Certified

RAPEP
Rwanda Association of Professional Environmental Practitioners

PRACTICE LICENCE

for Environmental Assessment (EA) in Rwanda

EARTH SYSTEMS

has qualified as a

Firm of Expert

and active member of RAPEP
for the period of 2022 - 2023

Registration: RAPEP/EA/160

Certified by: Richard Ngendahayo

Signature:

Date: 1st August 2022

RAPEP

Note: This Certificate is valid until 31 July 2023

RDB RWANDA DEVELOPMENT BOARD

ORG
Office of the Registrar General

Date of issuance: **12/05/2016**

Company Code: **106243480**

CERTIFICATE OF DOMESTIC COMPANY REGISTRATION

(Article 16 of law No 07/2009 of 27/04/2009 relating to companies)

Registration date:	15/02/2016
Company Name:	EARTH SYSTEMS Ltd
Category:	Private
Type:	Limited by shares

Registered Office Address:

Address:	Kinyinya, Gasabo, Umujyi wa Kigali, RWANDA
Phone number :	+250787 807 49
Email:	nigel.murphy@earthsystems.com.au

Management details:

Managing Director :

Name :	Nigel Cournane Murphy
ID Document :	PASSPORT Card No.: E3078379

Main Business Activity:

No.	Code	Description	Date
1	M7110	Architectural and engineering activities and related technical consultancy	15/02/2016

Other Business Activities:

No.	Code	Description	Date
1	M7020	Management consultancy activities	15/02/2016
2	M7120	Technical testing and analysis	15/02/2016
3	M7210	Research and experimental development on natural sciences and engineering	15/02/2016
4	M7490	Other professional, scientific and technical activities n.e.c.	15/02/2016

Louise Kanyonga
Registrar General

Serial No: **372995**

Page No: **1 / 1**

Check the validity of the certificate by visiting the link http://www.rdb.rw/ using the serial number.

Statutory Tax filing due dates

	Tax type	Filing due date
1	Profit Income tax	January 1st -31st March of the following year of registration
2	Quarterly Income tax prepayment	First quarter (April 1st – 30th June), second quarter (July 1st – 30th Sept) Third quarter (October 1st – 31st December)
3	VAT Monthly	1st – 15th of the following month after the VAT monthly tax period
4	VAT Quarterly	1st – 15th of the following month after the VAT quarterly tax period
5	PAYE (Pay As You Earn)	1st – 15th of the following month after the PAYE monthly tax period
6	PAYE Quarterly	1st – 15th of the following month after the PAYE quarterly tax period

Note :

1. Once you are registered for business, Profit income tax and Quarterly Income Tax prepayment Tax Accounts are automatically generated and you have obligation to make their declaration and payments where applicable in their respective due dates.
2. Other types of taxes mentioned in the table above and others not mentioned are being registered for during the course of business as they become mandatory except from VAT which is ether mandatory when you reach on an annual turnover of 20M Frw or 5MFrw million on quarterly basis, then Voluntary VAT registration when your annual turnover is bellow 20mFrw.
3. The first Quarterly Income Prepayment is made after the first profit Income Tax has been declared.

Article 219	Any company, other than a small private company shall have one or more employee whose duties shall be as indicated in this article in the companies' Act
Article 220	The Company shall within (30) days notify to the Registrar General whether the appointed employee resigned or was removed from office, the office of that employee shall not be left vacant for 3 months.
Article 233	The change of the registered office shall be notified to the Registrar General for registration by the Board of Directors. The change of the registered of the registered office shall take effect the date contained in the notice
Article 238	A company shall at each annual meeting appoint an auditor. The Registrar General shall have the powers to have the company appoint its auditor within thirty (30) days, if the post goes vacant for a month.
Article 253	The board of directors of every company shall ensure that within three (3) months following the end of financial statement, the audit is made and signed by at least one of the representative of the company. Such an audit shall be submitted to the Registrar General.
Article 258	Every company other than small private company shall ensure that, within thirty (30) days after the financial statement of the company and any group financial statements are required to be signed. Copies of those statements together with the auditor's report on those statements are filed with the Registrar General for registration
Article 259	A small private company shall file with the Registrar General a financial summary for registration
Article260	A company shall have a balance sheet date in each calendar year. A company may not have a balance sheet date in calendar year in which it is incorporated where its first financial statement date is in following calendar year and is not later than eighteen (18) months after the date of its formation or incorporation.
Article 330	A foreign company shall, within three (3) months of its annual meeting of shareholders, file with the Registrar General, and fulfill what is mentioned in this article.
Article 332	A foreign company shall, in addition to balance sheet and other documents required to be filed, comply with International Accounting Standards, fairly showing the assets employed in, and liabilities arising out of, and its profit and loss arising out of operations conducted in or from Rwanda.
Article 333	A foreign company shall file with the Registrar General in each year at the time a copy of its balance sheet is filed, a notice containing the particulars with respect to the business being carried out by the company in Rwanda.

APPENDIX B LAND TITLE DEEDS OF THE PROJECT SITE

RWANDA PRINTING AND PUBLISHING COMPANY

Gikondo Magerwa Expo Ground
TEL : 0786686668
EMAIL : vijay@rppc.co.rw
TIN : 102344976

INVOICE TO

TIN : 119373783
Name : COLD SOLUTIONS RWANDA

INVOICE N°: 10816

Date: 05/04/2023

Item Code	Item Description	Qty	Tax	Unit Price	Total Price
RWSNTXNOX0000016	LAND SALE	1	A	1,136,000,716.00	1,136,000,716.00

SDC INFORMATION

Date: 05/04/2023 14:38:47
SDC ID : SDC007003082
RECEIPT NUMBER : 10744/10744 NS
Internal Data:YF4I-LDUR-OO4G-BT7Y-34J5-IDLX-TE
Receipt Signature:2B4V-AXJW-2RQD-GLQN

RECEIPT NUMBER:10816
Date : 05/04/2023 14:38:47
MRC : WIS01003062

Total Rwf	1,136,000,716.00
Total A-EX Rwf	1,136,000,716.00
Total B-18% Rwf	0.00
Total Tax B Rwf	0.00
Total Tax Rwf	0.00

THE REGISTRAR OF LAND TITLES

Certificate of registration of emphyteutic lease

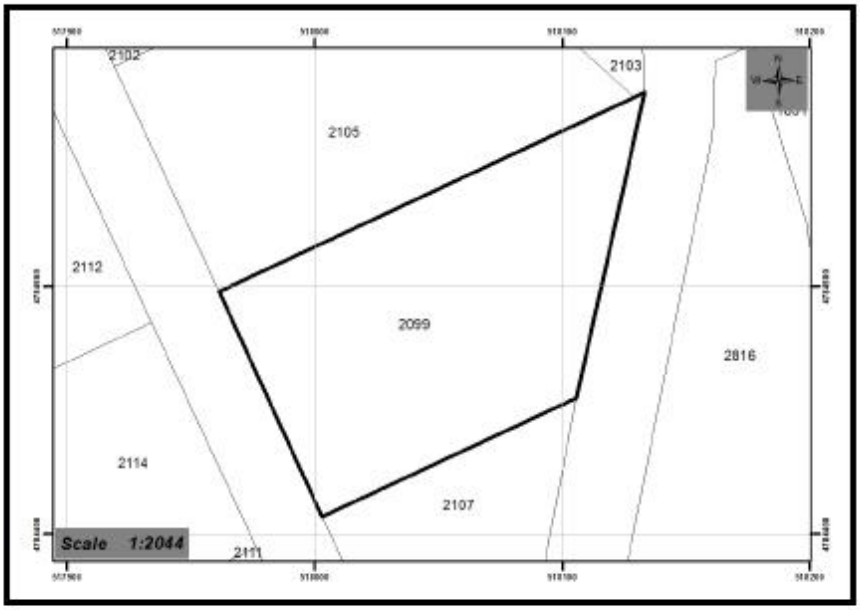
INFORMATION ON THE LAND

UPI:1/02/11/04/2099	Surface area: 15167 sqm	Land use: Commercial activities
Province : Kigali City	Cell : MASORO	
District : Gasabo	Village : Munini	
Sector : NDERA	Lease period : 41 years starting from 05/04/2023	

INFORMATION ON THE LESSEE

Names of the lessee (s)	Number of identification document	Shares (%)	Names and address of the representative
1. COLD SOLUTIONS RWANDA LIMITED	119373783	100.00	RIFAI AZHAR (556668519) Kigali City,Gasabo,KACYIRU,KAMATAMU,Amajyambere

EXTRACT OF CADASTRAL PLAN



*This electronic land title is valid only if the information recorded on it is reflecting the one in the national land registry which is accessible by dialing *651* or browsing https://landinformation.lands.rw*

CONTRACT OF EMPHYTEUTIC LEASE No 2099/GAS/NDE/MAS/1

Pursuant to Law No 27/2021 of 10/06/2021 governing land, especially in Article 9;

The Republic of Rwanda, represented by the Registrar of Land Titles "the landowner" enters into a contract with the lessee (s) relating to the contract of Emphyteutic lease on land as follow:

1. This contract concerns the land rights of emphyteutic lease for plot with UPI 1/02/11/04/2099
2. The duration of emphyteutic lease is 41 years renewable in accordance with relevant laws;
3. During the lease period, the lessee must maintain and improve the land and use it in accordance with the land use master plan and other relevant laws;
4. The lessee has an obligation of exploiting a land in a productive way in accordance with the provisions of this contract and other relevant laws. The lessee must comply with the land use and development master plan, rules and regulations applicable to land, take all necessary measures to protect land, take all steps to prevent soil from erosion, pollution or waste, or obstruct the flow of water;
5. The lessee must take all necessary measures to keep boundary to neighboring land visible and shall not change them. The investor may not change the land use without prior written authorization in accordance with laws and regulations governing land;
6. As long as the lessee observes and performs obligations contained in this contract, he/she has the right to possession and full enjoyment of the land and production without any disturbance of the State or any person rightfully claiming through the State unless the laws provide otherwise;
7. In case of joint ownership, the representative is not allowed to transfer the land rights through purchase, donation, exchange, rent, mortgage, sublease or any other transfer without prior written consent of all the registered right holders on the land title. However, the transfer of land rights jointly detained by spouses, is approved by both of them, even if one of the spouses is not registered on the land title;
8. For activities which require permit, the lessee must first get a prior written authorization from the competent authority;
9. The lessee cannot deny officers from the institution in charge of management of land or any person duly authorized entry into the land at such time as may be reasonable to inspect the use of land and the compliance with the terms of relevant laws;
10. As long as the lessee observes the terms of this contract, he/she has the right to possession and full enjoyment of the land and all products during the term of lease without any disturbance of the State or any person rightfully claiming through the State unless the laws provide otherwise;
11. The lessee has right to transfer the land rights through purchase, donation, exchange, rent, mortgage, sublease or any other legal transaction on the land;
12. The lessee must not obstruct underground activities or those in the space above his or her land when the activities are of public interest and are done in accordance with relevant laws;
13. The lessee must pay land taxes and other charges, if any, payable with respect to the land in accordance with relevant laws;
14. The lessee receives fair and just compensation from the lessor or any other person duly authorised in case the activities of public interests cause him/her any damage;
15. The lessor may terminate this contract, after issuing to the lessee a written notice of ninety (90) days, if the lessee has not complied with the terms of contract and other relevant laws. However, the land owner cannot terminate the land ownership contract if the land owner has provided reasonable grounds for not complying with the contract;
16. This lease contract can also be terminated by the lessee with a written notice of ninety (90) days, after providing to the lessor the reasonable grounds;

Lessee representative

RIFAI AZHAR

For the Republic of Rwanda

05/04/2023

Registrar of Land Titles

*This electronic land title is valid only if the information recorded on it is reflecting the one in the national land registry which is accessible by dialing *651* or browsing https://landinformation.lands.rw*

APPENDIX C STAKEHOLDER ENGAGEMENT PLAN (SEP)

INTRODUCTION

Cold Solutions Rwanda Limited (hereafter referred to as the Project Proponent / CSRL), appointed Environmental Resources Management Consulting East Africa Limited (ERM) to act as independent environmental and social (E&S) consultants to undertake the Environmental and Social Impact Assessment (ESIA) for the construction and operation of the proposed Temperature-Controlled Storage Facility (TCSF) and associated logistics operations, in the Kigali Special Economic Zone (KSEZ), Rwanda (hereafter referred to as the Project). The KSEZ is promoted by the Prime Economic Zone Limited (PEZ). More specifically, it is situated in Munini Village, Masoro Cell, Ndera Sector, Gasabo District on the outskirts of City of Kigali (CoK), 4 km from the Kigali International Airport and 12 km from the City centre along the Kigali-Kayonza National road) (Table 1.1 and Figure 1.1).

ERM is a global E&S sustainability consultancy firm with the main East African Region Office in Nairobi, Kenya. ERM subcontracted Earth Systems, a Rwanda based consultancy firm to enhance the local content of the E&S consultancy team as well as manage the submission of the ESIA report to the local (Rwandan) authorities.

ERM has engaged Earth Systems as the 'Sub-Consultant Team' to assist locally. Earth Systems has been operating in Africa since the early 2000's and has completed a number of projects in Rwanda, Uganda, Tanzania, Senegal, Mali and Guinea. Earth Systems has a proven track record working on various projects and has worked on all project stages. As part of the Consultancy Team Earth Systems has extensive experience with projects that require a detailed understanding of the environmental and social policies, performance standards and guidelines of the World Bank / International Finance Corporation (IFC). Earth Systems is a licensed EIA consultant with the Rwanda Environmental Management Authority (REMA) and the Rwandan Association of Professional Environmental Practitioners (RAPEP), registration number RAPEP/EA/160. The proposed Project will be located on plot 102344976 with a UPI of 2487 of the KSEZ. CSRL is in the final stages of contract negations with Rwanda Printing and Publishing Company Ltd on the purchase of the required Project plot.

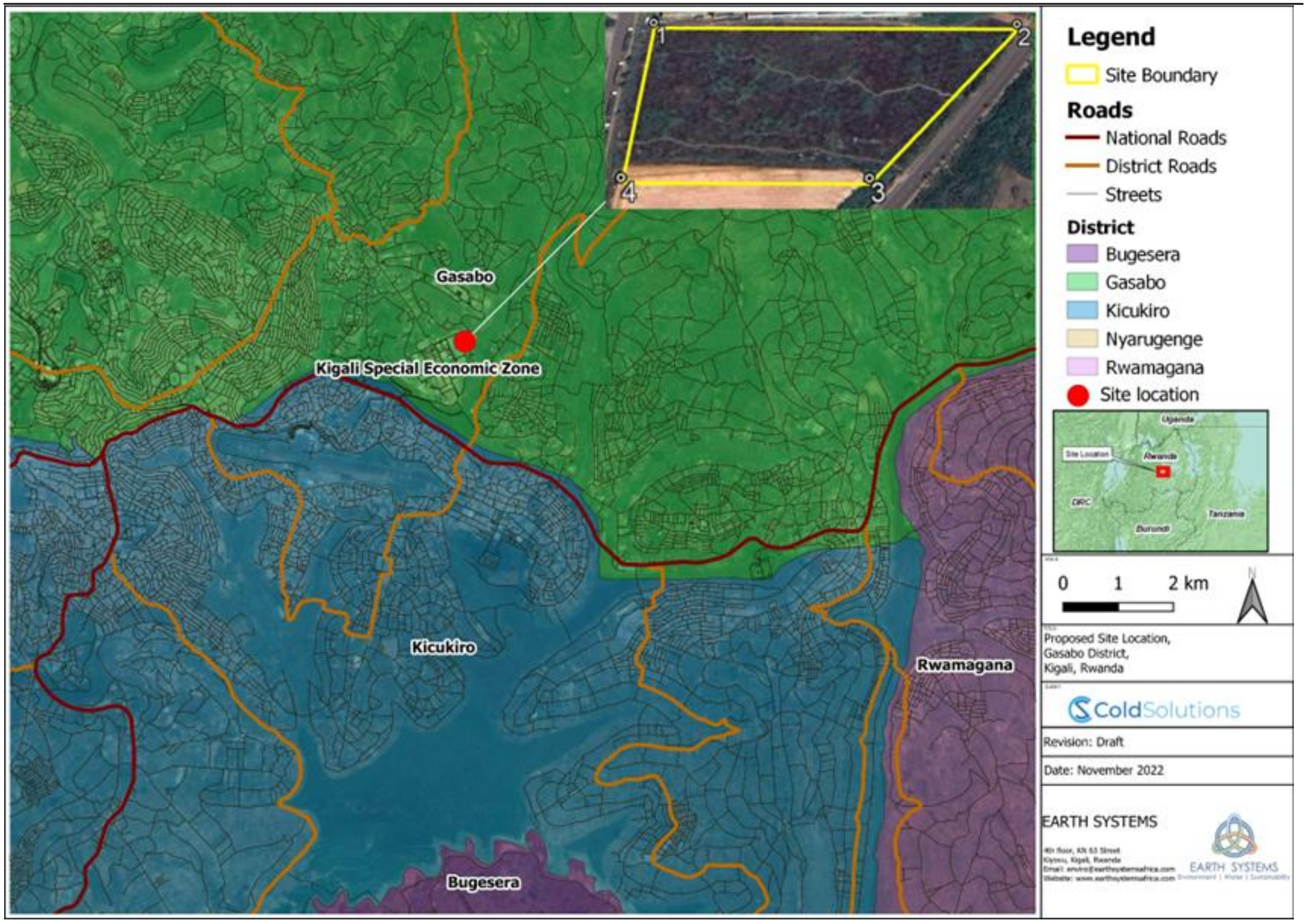
Project Overview

The Project entails the construction and operation of an up to 12,000 m^2 cold storage facility with end-to-end logistics capable of storing approximately 10,000 pallets. Key components of the Project include:

- Warehouse facility with different refrigeration temperature zones. Refrigeration technology will be ammonia-based.
- Supporting facilities including plant room, chiller area, power system (roof-top solar), office space, guardhouses, and pallet repair areas.
- 10 docking bays for loading and un-loading of goods.
- Small wastewater treatment plant (WWTP) to treat cooling water effluent to national discharge standards and recycle 60% back into the cooling system.
- An integrated power system comprising roof-top solar Photovoltaic (PV) system and a backup diesel-powered generator in case of grid outages (to service 2-3 MW power demand).
- End-to-end customer logistics serviced by 12 refrigerated vehicles.

The figure below presents a locality map of the proposed Project within the Kigali Special Economic Zone (KSEZ),

A locality Map of the Proposed Project within the Kigali Special Economic Zone (KSEZ)



Conceptual Design of the Proposed Project

Project Site Characteristics

The table below presents a summary description of the Project Site.

Summary of Project Site Characteristics

Site Description	The plot has an average slope of 16% from East to West and an average of 0.6% from North to South. The plot would require major excavation along with retainer walls.
Site Access	Masoro-Munini, just a few kilometers from the Kigali International Airport along the Central Transport Corridor is strategically located near the center of Kigali, truck access into and out of the park are of a good standard, the infrastructure is of a good standard and traffic seem to be free flowing without any congestion.
Land acquisition	Land owned by the Rwanda Printing and Publishing Company Ltd.
Environmental setting and sensitivities	Rwanda Development Board (RDB) has carried out EIA's on Phase 1 and 2 and require an independent EIA to be carried out by the buyer of any plot of land in the Park.
Associated facilities	It is envisaged that the facility will undertake some food processing requiring water treatment. It will be confirmed during the concept design phase and subject to assessment as part of the wider facility E&S Assessment undertaken by a registered environmental consultant. Utilities (power, water, sewage) are provided by the municipality
Land ownership and current land uses	The plot option is owned by the Rwanda Printing and Publishing Company Ltd.

Purpose of the Stakeholder Engagement Plan

This Stakeholder Engagement Plan (SEP) has been prepared for the proposed Temperature Controlled Storage Facility (TCSF) in Kigali and details the approach to engaging stakeholders as part of CSRL's Environmental and Social Management and Monitoring Plan (ESMMP).

The SEP has been prepared in accordance with National legislation and international standards (including the IFC Performance Standards) and therefore aims to ensure engagement is free of manipulation, interference, coercion and intimidation.

This SEP:

- Outlines the approach and plans to be adopted and implemented during engagement, showing how the engagement process will be integrated into the ESIA process and guidance for post ESIA engagements;
- Identifies stakeholders and the engagement mechanisms through which they will be included in the process;
- Serves as a way to document the stakeholder engagement process; and

This SEP should be seen as a "living document" that will be updated and adjusted continuously as Project planning and implementation evolves. It will continue to provide a framework to manage effective and meaningful engagement with stakeholders, throughout the life of the Project.

Objectives of Stakeholder Engagement

The main objectives of stakeholder engagement are to:

- ***Identify relevant stakeholders for the Project:*** Involving stakeholders to facilitate inclusive communication and capture a wide range of issues and concerns.
- ***Promote cooperation and positive participation from stakeholders:*** Ensuring that an open, inclusive and transparent process of culturally appropriate engagement and communication is undertaken, to ensure that stakeholders are well informed about the Project. Information shall be disseminated using the most effective methods and structures.
- ***Distribute accurate Project information in an open and transparent manner:*** Ensuring that stakeholders, particularly those directly affected by the proposed development, have information at their disposal with which to make informed comments and enable them to plan. This reduces levels of uncertainty and manages expectations. Information should allow affected parties to develop an understanding of potential impacts, risks and benefits and an open and transparent approach is central to achieving this aim.
- ***Form partnerships to promote constructive interaction between all parties, developing relationships of trust between the Project and stakeholders:*** This will contribute to proactive interactions and avoid where possible, unnecessary conflicts based on rumour and misinformation. Identifying structures and processes through which to deal with conflicts and grievances, in contrast to attempting to quash any disputes, would afford the Project a better understanding of stakeholder concerns and expectations thereby increasing the opportunities to increase the Project's value to local stakeholders.
- ***Record and address public concerns, issues and suggestions:*** Documenting stakeholder issues allows Project decisions to be traced and motivated. This approach addresses potential concerns that stakeholder engagement may be a token gesture by the developer that meets requirements but that it is not taken seriously in the Project planning.
- ***Manage stakeholders' expectations:*** Ensuring that the proposed Project does not create or allow unrealistic expectations to develop amongst stakeholders about proposed Project benefits. The engagement process will serve as a mechanism for understanding and managing stakeholder and community expectations, where the latter will be achieved by disseminating accurate information in an accessible way.
- ***Fulfil national and international requirements for consultation:*** Ensure compliance with both local regulatory requirements and international best practice. One of the key outcomes of

engagement should be free, prior and informed consultation of stakeholders, where this is understood to be: engagement free of external manipulation or coercion and intimidation.

- ***Ensure that appropriate Project information on environmental and social risks and impacts is disclosed to stakeholders:*** In a timely, understandable, accessible and appropriate manner and format.

Structure of the SEP

The remainder of the document is structured as follows:

- **Section 2:** Outlines the Key Standards and Legislation guiding Stakeholder Engagement.
- **Section 3:** Presents Project Stakeholder Identification and Mapping.
- **Section 4:** Outlines the Approach to the Stakeholder Engagement Process/ Communication Plan.
- **Section 5:** Presents ESIA Phase Stakeholder Engagements
- **Section 6:** Next steps in Stakeholder Engagement/ Post-ESIA Stakeholder Engagement
- **Section 7:** Outlines the Grievance Redress Mechanism.
- **Section 8:** Outlines the Monitoring and Reporting.

KEY STANDARDS AND LEGISLATION GUIDING STAKEHOLDER ENGAGEMENT

Introduction

The stakeholder engagement process has been designed to ensure compliance with Rwandan legislative requirements, as well as the IFC Performance Standards on Environmental and Social Sustainability. This Chapter presents the relevant standards and legislation identifying the key Rwandan and IFC requirements for engagement.

National Requirements for Stakeholder Engagement

The Constitution of the Republic of Rwanda, 25th December 2015

It is important to note that all laws and regulations in Rwanda must be aligned with principles in the Constitution. The Rwandan Constitution was approved in a national referendum and adopted in Parliament on 25th December 2015.

According to the Constitution of the Republic of Rwanda, Article 3 states that the Constitution is the supreme law of the country. Any law, decision or act contrary to this Constitution is without effect.

Article 21 of the Constitution states that all Rwandans have the right to good health, while article 22 emphasises that everyone has the right to live in a clean and healthy environment.

Article 48 stipulates that all Rwandans have the duty to participate in the development of the country through their dedication to work, safeguarding peace, democracy, equality and social justice as well as to participate in the defence of their country.

Rwanda National Human Settlement Policy, 2009.

Its requirements on stakeholder engagement are geared to ensuring that affected persons participate during consideration and development of a project and their views are understood before the implementation of a project. These requirements include:

- Development planning shall be integrated, participatory, evidence-based, and focused on addressing the priority needs of citizens, taking into consideration, the overall national development vision;
- Community participation is essential for the improvement of human settlements, meeting needs and priorities, ensuring that beneficiaries agree with the development objectives and cooperate in their implementation, establishing procedures corresponding to resources, capacities and priorities and creating the feeling of accountability among the people; and
- All the economic players (public sector, private sector, Non-Government Organisations (NGOs) and households) are required to take an active part in the planning and establishment of sustainable human settlement.

Rwandan EIA legislation and implementing guidelines contain specific provisions regarding stakeholder engagement and the EIA process. In the Guidelines, it is stated that, ***"…from a social standpoint, EIA incorporates interests of public and private stakeholders, residents and communities in the planning and approval process of projects."*** The Guidelines are not detailed, but the intent is clear. Stakeholders, including communities, are to be consulted early in the EIA process; especially during scoping and preparation of the Terms of Reference (ToR) (also referred to as the Scoping Report) by the developer for submission to REMA for review and approval. Stakeholders can also be consulted at other times during the EIA process and, particularly, play a role, in advising, ***"…. project developers and REMA [Rwanda Environment Management Authority] on approaches to avoid, minimise or compensate for adverse environmental impacts."***

EIA Reports and accompanying Environmental Management Plans (EMP) are submitted to REMA, which is mandated to consult with other government entities (by providing them with copies of the EIA

Report and EMP for review and comment). REMA is also responsible for organising and implementing public hearings as an input to the 'approval' process for a project. Public hearings are thus the main mechanism for community stakeholders to be involved as part of the ESIA process.

Local governments also play an important role in the local-level aspects of managing the public hearings and in conveying local stakeholder comments on both the project and the disclosed EIA Report and EMP to REMA. Few details are provided on how this should be done by local governments. Project developers do not play a lead role; however, they are expected to participate in all public hearings.

International Requirements

The IFC PS on Environmental and Social Sustainability, published on 1 January 2012, and the IFC Environmental, Health and Safety (EHS) Guidelines are generally accepted as the benchmark of best practice for environmental and social safeguards. These standards include guidelines for engagement.

The IFC Performance Standard 1 (PS1) requires project proponents to engage with affected communities through disclosure of information, consultation, and informed participation, in a manner commensurate with the risks to and impacts on the affected communities. PS1 contains clear requirements for community engagement, disclosure of information and consultation as well as the management of grievances throughout the Project. The box below outlines the main requirements for consultation and disclosure under PS1, the umbrella Standard on the Assessment and Management of Environmental and Social Risks and Impacts.

The process of conducting stakeholder engagements presented in the Box below, which is also consistent with the requirements of the African Development Bank (AfDB)'s Operational Standard (OP) on consultation.

Requirements for Stakeholder Engagement as per IFC PS1

Aim

To ensure that affected communities are appropriately engaged on issues that could potentially affect them; to build and maintain a constructive relationship with communities; and to establish a grievance mechanism.

Who to consult

- Directly and indirectly affected communities;
- Positively and negatively affected communities / individuals;
- Those with influence due to local knowledge or political influence;
- Non-elected community officials and leaders;
- Informal/traditional community institutions and/or elders; and

When to consult

Consultation should begin as early as possible or at the latest prior to construction. Consultation should be an on-going process throughout the life of the Project, i.e. be iterative. Consultation should also allow for a feedback (grievance) mechanism where affected people are able to present their concerns and grievances for consideration and redress.

What to consult on

- Disclosure of Project information (purpose, nature, scale);
- Disclosure of Project ESIA documentation; and
- Updates, actions and proposed mitigation measures to address areas of concern for affected communities.

How to consult

The consultation process is designed to be iterative such that mitigation and its implementation is informed by stakeholder views, is tailored to local needs, and identifies appropriate mechanisms for sharing development benefits and opportunities. The consultation process should also include consent prior to the engagement and an informed discussion on the aim and objective of the engagement.

The Project should ensure that:

- Engagement is undertaken sufficiently to enable key messages to be absorbed and considered;
- All written and oral with communications are in local languages and readily understandable formats;
- There is easy access to both written information and to the consultation process by relevant stakeholders;
- Oral and visual methods are used to explain information to non-literate people;
- Consultation activities respect local traditions regarding discussion, reflection, and decision making;
- Care is taken in assuring that groups being consulted are representative (with adequate representation of women, vulnerable groups, and ethnic or religious minorities, and separate meetings for various groups, where necessary); and
- There are clear mechanisms to respond to people's concerns, suggestions and grievances.

STAKEHOLDER IDENTIFICATION AND MAPPING

Introduction

Stakeholders include individuals or groups that may influence or be impacted by the Project directly or indirectly and those who may have interests in a Project and/or the ability to influence its outcome, either positively or negatively.

Stakeholder Identification

The stakeholder identification process establishes which organisations and individuals may be directly or indirectly affected (positively or negatively) by the proposed Project, or have an interest in it. In order to develop an effective SEP, it was necessary to determine exactly who the stakeholders are and understand their priorities and objectives in relation to the proposed Project. By classifying and analysing the stance, influence, capacity and interests of stakeholders, it was then possible to develop a SEP that was tailored to the needs of different stakeholder groups.

It should be noted that stakeholder identification is an on-going process, requiring regular review and updating as the Project progresses. For the Project, stakeholders have been, and will continue to be identified on an on-going basis by:

- Identifying the different categories of stakeholders who may be affected by or interested in the Project.
- Identifying specific individuals or organisations within each of these categories taking into account:
  - The geographical area over which the Project may cause impacts (both positive and negative) over its lifetime, and therefore the localities within which stakeholders could be affected; and
  - The nature of the impacts that could arise and therefore the types of government bodies, Non-Governmental Organisations (NGOs), businesses, academic and research institutions, international organizations and other bodies who may have an interest in the proposed Project.

The details of stakeholders identified and consulted during the ESIA stage are included in Appendix E of the ESIA Project Report) and it is expected that more stakeholders will be identified and engaged throughout the Project lifecycle. In particular, new stakeholders are expected to come to the attention of the Project through continuing engagement activities and unsolicited contacts made with the Project.

Stakeholder Analysis

Once stakeholders were identified, a basic analysis was undertaken to understand their connection to the Project as well as their needs and expectations regarding engagement or consultation. The table below details the potential Project stakeholder groups that were identified and explains their connections to the proposed Project.

Identified Project Stakeholders

Stakeholder Category	Stakeholder Group	Connection to the Project	Stakeholders Required to be consulted	Stakeholders TBC	Comment
National Government	National Regulatory Bodies Government Agencies	National Government are of primary importance in terms of establishing policy, granting	REMA	Rwanda Development Board	The aim is to conduct a stakeholder engagement meeting with the relevant departments at national level and determine whether further engagements are
			RDB Rwanda Standards Board (RSB)	Environmental Permitting and Licensing Division	

Stakeholder Category	Stakeholder Group	Connection to the Project	Stakeholders Required to be consulted	Stakeholders TBC	Comment
		permits or other approvals for the proposed Cold Storage Facility, and monitoring and enforcing compliance with Rwandan Law throughout all stages of the Project life cycle.			required at the national level.
			National Agriculture and Export Board (NAEB)	Traditional commodities Division Cold chain specialist	NAEB is the Institution supporting export of non- processed and processed foods. They provide pack houses and cold rooms. The aim was to understand the current cold storage status in Rwanda.
			Food and Drug Authority (FDA)	Quality control division	Stakeholder engagement was to understand whether CSRL requires any prior licensing from FDA for processed foods and RICA for unprocessed food as a cold storage facility other than food storage and processing International standards mentioned in 4.8.8.2.
			Rwanda Inspectorate, competition and consumer protection authority (RICA)	Quality control division	
			RSB	Standards and Metrology department	The aim of the engagement was to understand the requirements, standards designed for a cold storage facility and different services offered by RSB such as quality testing certificates.
Special Economic Zone	PEZ	PEZ manages the KSEZ, is responsible for all infrastructure, zoning of KSEZ, issues sales agreement for land acquisition and approval of project designs for construction and	PEZ management	Managing Director Infrastructure manager	The engagement is to understand the process of land acquisition of identified project plots, zoning of the KSEZ, infrastructure available, capacity of services available at KSEZ, whether project activities are acceptable in and around the designated project area.

Stakeholder Category	Stakeholder Group	Connection to the Project	Stakeholders Required to be consulted	Stakeholders TBC	Comment
		operations to commence.			
Pharmaceutical and Medical stores	Rwanda medical supply (RMS) ltd	Deal in controlled temperature (cold and HVAC) storage of medicine, vaccines.	RMS management	N/A	Consultation was to understand the potential demand for storage of pharmaceuticals in Rwanda and whether the capacity is sufficient.

Stakeholder Mapping

It is important to tailor the engagement methodology to the targeted stakeholders and their relationship to the proposed Project (their influence and interest). Stakeholder mapping seeks to understand stakeholders' level of interest in the Project and influence in decision making as well as on other Project stakeholders, and will continue throughout the Project lifecycle. It is also important to note that stakeholder interests and level of influence is dynamic and changes over time; hence the need to periodically update the stakeholder mapping as well as the wider SEP. Mapping will also help identify stakeholders who may find it more difficult to participate in consultation activities and are affected by or interested in the proposed Project because of their marginalised or vulnerable status (such as disabled or elderly people).

Stakeholder mapping considers:

- Who is affected by the proposed Project and how;
- Who the formal and informal community leaders are and to what degree they are seen as representative;
- Whether the stakeholder supports, is neutral towards or is opposed to the proposed Project;
- Each stakeholder's interests and concerns in relation to the proposed Project; and
- How different stakeholders can influence the proposed Project and what risks or opportunities this presents.

According to each stakeholder's levels of interest or impact on the proposed Project, different levels of engagement intensity will be employed. Stakeholders have been mapped using the mapping tool as presented in the Mapping Matrix shown in the below.

Stakeholder Mapping Tool

		Level of interest										Level of Influence									
Stakeholder		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
1.	REMA							x											x		
2.	NAEB								x									x			
3.	FDA								x									x			
3	RICA								x										x		
4	PEZ						x									x					
5.	RMS					x												x			
6.	RDB							x											x		
7.	RSB						x											x			

Scale:

Low= 1-3

Medium= 4-6
High= 7-10

Table 11.1: Stakeholder Mapping Matrix

Level of Interest	Low	Medium	High
High		RMS	REMA, NAEB, FDA, RICA, RDB, RSB
Medium	Business Organizations Financial Organizations	PEZ	County Government Departments (Environment, agriculture and Livestock, Education, Lands, Gender, and Culture)
Low			

Level of Influence

APPROACH TO THE STAKEHOLDER ENGAGEMENT PROCESS/ COMMUNICATION PLAN

Basic Principles of Stakeholder Engagement

As per the IFC's *Good Practice Handbook on Stakeholder Engagement*, a good consultation and engagement process should be:

- targeted at those most likely to be affected by the project;
- early enough to scope key issues and have an effect on the project decisions to which they relate;
- informed as a result of relevant information being disseminated in advance;
- meaningful to those consulted because the content is presented in a readily understandable format and the techniques used are culturally appropriate;
- two-way so that both sides have the opportunity to exchange views and information, to listen, and to have their issues addressed;
- gender-inclusive through awareness that men and women often have differing views and needs;
- localized to reflect appropriate timeframes, context, and local languages;
- free from manipulation or coercion;
- documented to keep track of who has been consulted and the key issues raised;
- reported back in a timely way to those consulted, with clarification of next steps; and
- ongoing as required during the life of the project.

***Note**: There is no one right way of undertaking consultation. Given its nature, the process will always be context-specific.*

Objectives of the Communication Plan

The objective of this communication plan is to define the communication requirements for the Project and how information will be shared. This plan describes the following:

- Information that will be communicated including the level of detail and format;
- How the information will be communicated – in email, telephone, web portal, WhatsApp, etc.
- When information will be distributed, the frequency of Project communication, both formal and informal;

- Who is responsible for communicating Project information;
- Communication requirements for all Project stakeholders;
- How sensitive or confidential information is communicated and who must authorize this;
- How changes in communication or the communication process will be managed;
- Any constraints, internal or external, which may affect Project communication; and
- The escalation process for resolving any communication-based conflicts or issues.

Key Issues to Communicate

The following are some of the important messages that will be communicated to the stakeholders:

- Background of the Project;
- Project Description and Location;
- Project Activities;
- The potential benefits and impacts posed by the Project;
- The process that will be followed to engage with stakeholders; and
- How and when stakeholders can participate in the Project.

It is also important that the following information is communicated to the Project stakeholders on a needs-basis:

- Construction activities;
- Any interruptions of service utilities;
- Potential impacts of construction and operation activities; and
- The list of complaints that have been received and resolved – this would ensure that the stakeholders are not relying on rumours as their main source of Project information.

Particularly, there will be need to inform the Stakeholders of all planned Project activities and potential risks and impacts on them, as well as opportunities.

When to Communicate

Project communication will be structured and offered regularly but with the flexibility of responding to issues as they emerge. Broadly, stakeholder engagement for the proposed Project has been categorised into ESIA and Post-ESIA engagement activities as described in detail in Chapters 0 and 0 of this SEP.

Communication Methods

Stakeholder engagement aims at making information about the Project accessible to interested and affected parties. Communicating such information in a manner that is understandable to the Project stakeholders is an important first (and ongoing) step in the process of stakeholder engagement.

A variety of communication methods are used to engage with stakeholders reflecting their level of authority, socio-economic context, and cultural and intellectual factors such as level of education and literacy.

Kinyarwanda is the official language of Rwanda alongside French and English. Although there are a number of other ethnic-related languages, the national language is Kinyarwanda which is quite often spoken throughout the country and the main mode of communication. Therefore, for all the stakeholder engagements, particularly with local community members, the main mode of communication will be through the local language. For official meetings and communication, English will be the main mode of communication given that it is the official language of the country. The table

below provides an overview of the common methods that can be used to disseminate information to stakeholders depending on the stakeholder group and literacy levels.

Common Methods used in Information Dissemination

Focus Group Discussion: Targeted discussion with a group of individuals with similar characteristics such as women, men, youth, indigenous peoples and Project Affected Households (PAHs) to capture targeted information that may not be captured in an open space. These meetings also create a platform for vulnerable or marginalised groups to freely voice their opinions and concerns to be factored into the Project design and implementation of the Project elements and programmes.

Key Informant Interview: One-on-one meeting with a professional or individual with knowledge and expertise about a specific subject area that can provide targeted information in relation to specific aspects of the project for consideration in project design and implementation of project elements or programmes.

Formal Meeting: Formal meeting to present project information to a group of individuals with authority or that may be a key stakeholder, such as the government or NGOs, and to gather feedback for consideration in Project design and implementation of Project elements or programmes.

Community Meeting/ Barazas: Gathering of all members of the community residing in a particular area to present project information and gather feedback for consideration in project design and implementation of project elements or programmes.

Household Surveys: Administering a household survey questionnaire to each of the households that will be directly affected by land acquisition activities to have a good understanding of their household characteristics and livelihoods. This method is often used during the conduct of RAPs

Covid-19 Implications on Consultation Activities

Given the current global situation with COVID-19, the ESIA engagement process also employed remote engagement techniques summarised in the table below.

Communication Methods and Tools Used in the ESIA Process

Tool	Purpose	Stakeholder Groups	Use
Background Information Document (BID)	Provides an overview of a specific topic being discussed. Allows stakeholder to and have a line of contact with the developer should they have any questions.	All	Electronically distributed to identified stakeholders e.g. Government, Ministries, regulatory authorities and other stakeholders.
Telephone calls	Provides an opportunity for stakeholders to give verbal feedback and make inquiries about the project.	All	Used to set up the meetings and seek verbal feedback from the stakeholders
Reports and plans	Technical written reports that present details on potential impacts of the Project and how CSRL will manage the environmental and social aspects of the Project to minimize adverse impacts and maximize benefits. This includes the ESIA Project Report and this SEP.	Government/ regulatory institutions and Project lenders	Available online/ shared electronically, Project office, relevant government authorities and public places.

Tool	Purpose	Stakeholder Groups	Use
Power Point presentations	Detailed presentation to provide technical information regarding the Project.	Government/ regulatory institutions and Project lenders	Used during remote presentations (e.g. zoom or skype)
Key Informant Interviews (KIIs)	Gathering primary baseline data and feedback	Government/ regulatory institutions and Project lenders	
Public Barazas and Focused Group Discussions	Gathering primary data and feedback about the Project.	Local leaders, elders and the community	Used at the time of Site visit.

ESIA PHASE STAKEHOLDER ENGAGEMENT

Stakeholder Meetings Held

The table below presents the list of Stakeholder Engagements conducted while a summary of the key issues raised are presented in the next table.

Stakeholder Meetings Held

Stakeholder	Mode of Engagement	Engagement Date	Venue
REMA	KII	02/11/2022	KG 7 Ave, Kigali, Rwanda
PEZ	KII	02/11/2022	PEZ, Kigali
NAEB	KII	03/11/2022	KK 530 St, Kigali, Rwanda
FDA	KII	03/11/2022	KG 7 Ave, Kigali, Rwanda
RDB	KII	03/11/2022	KG 7 Ave, Kigali, Rwanda
RICA	KII	02/11/2022	KK 8 Ave, Kigali, Rwanda
RSB	KII	02/11/2022	KG 7 Ave, Kigali, Rwanda
RMS	KII	03/11/2022	KN 8 Ave, Kigali, Rwanda

Outcomes of ESIA Process Stakeholder Engagement

As indicated in the table above, several stakeholder engagement meetings were held during the ESIA process.

The key questions and concerns raised by stakeholders are in the table below.

Outcomes of ESIA Process Stakeholder Engagement

Main Theme brought up by Stakeholders	Key stakeholders issues/ comments
On stakeholder engagement	Consult widely, including consultations with PEZ, NAEB, FDA, RICA, RSB, RMS. Other additional stakeholders can include neighbouring industries or businesses which include: ▪ Zara Investments Ltd. ▪ Sophar Ltd - wholesale pharmacy services. ▪ Alpha choice Rwanda Ltd - Importers and distributors. ▪ Bollore Transport & Logistics Rwanda Ltd.
	Consider Stakeholder issues raised during stakeholder consultation process.
On Positive impacts/ opportunities	▪ Employment opportunities for the local community members during construction and operations. ▪ Achievement of a cold storage facility. ▪ Price stability for agricultural products (meat, horticulture products, etc) and pharmaceuticals. ▪ Food security (as a result of improved storage). ▪ Achieved of agriculture best practice (related to storage of agricultural produce). ▪ Enhanced trade with regards to fresh products. ▪ Contributes towards development of the Kigali Special economic zone. ▪ Contribution to meeting required food standards for export of food and animal products.
Shared facilities	There are shared facilities within the Project area, such as electricity, water, sewer lines, optic fibre etc. It is best practice to inform the PEZ management and neighbours of any planned activities or disruptions that may take place. This will also help in good management and in harmonised planning and development.
Stormwater management	PEZ mentioned that the developer presents a formidable stormwater management plan as part of project designs for construction approval on how they will manage rainwater roof and run-off to avoid flooding of the receiving drainage channels.

Main Theme brought up by Stakeholders	Key stakeholders issues/ comments
On stakeholder engagement	Consult widely, including consultations with PEZ, NAEB, FDA, RICA, RSB, RMS. Other additional stakeholders can include neighbouring industries or businesses which include: ▪ Zara Investments Ltd. ▪ Sophar Ltd - wholesale pharmacy services. ▪ Alpha choice Rwanda Ltd - Importers and distributors. ▪ Bollore Transport & Logistics Rwanda Ltd.
	Consider Stakeholder issues raised during stakeholder consultation process.
Management of Negative Impacts	▪ Management of dust and noise emissions. ▪ GHG emissions ▪ Stormwater management/ drainage ▪ Potential of ammonia leakage and associated impacts. ▪ Waste Management with reference to potential organic waste and effluent management. ▪ Increased usage of the KSEZ Infrastructure. ▪ Storage of potable water supplied on site to avoid issues during water outage. ▪ Smell of organic waste during operation. ▪ Occupational Health and Safety (OHS) diseases especially for those who will work in the cold storage facility for a long period. ▪ Compliance to international and national standards of clientele for food storage, processing and pharmaceutical storage.

NEXT STEPS IN STAKEHOLDER ENGAGEMENT/ POST ESIA STAKEHOLDER ENGAGEMENT

The Project is committed to continuous engagement with stakeholders throughout the life of the Project. Plans and activities implemented during the next stages of Project planning and development will therefore feed into and inform on-going stakeholder engagement as the Project moves into these stages, ensuring that two-way dialogue with those affected, both positively and negatively by the proposed Project is maintained.

The aim will be to ensure that the Project remains in contact with all interested parties and cognisant of their concerns, and that these are addressed in an effective and timely manner. At each stage a detailed schedule of activities and events will be developed and widely disseminated so that people know how to interact with and participate in the Project.

In particular, post-ESIA stakeholder engagement is expected at the following Project stages:

- Pre-construction stage where stakeholders who will be directly affected by the Project will be notified and discussions will be held with them.
- Mobilisation phase: At this stage, information regarding the location of associated project infrastructure, detailed construction schedule, expected construction team (including employment opportunities) will be shared with the Project stakeholders.
- Construction phase: Continuous engagement with the Project stakeholders throughout the construction phase to keep them updated of the construction activities as well as any changes to the initial Project plans that may happen during this phase.
- Demobilisation phase notifying the stakeholders the end of the construction activities and close-out of outstanding construction phase related grievances.
- Operations Phase: Continuous engagement with stakeholders to keep them updated of the operation activities including available products and services as well as any changes made during this phase.
- Decommissioning Phase: Currently there are no plans to decommission the Project; however, should this arise in future, the relevant stakeholders at that time will need to be appropriately engaged to minimise related negative impacts. It is anticipated that the current baseline information will have been completely changed at that time (the Project Area is expected to be a fully developed Kigali Special Economic Zone (KSEZ) at that time) and thus it is recommended that a decommissioning engagement plan is prepared at that stage, at least three months prior to the commencement of the decommissioning activities. The Project will consult with stakeholder groups, to ensure that feedback regarding the impacts of decommissioning is considered in the Plan. Each stage of the stakeholder engagement process will be documented in line with the monitoring and reporting requirements in this SEP.

GRIEVANCE REDRESS MECHANISM

Introduction

The Project will need to establish a specific mechanism for dealing with stakeholder grievances. A grievance is a complaint or concern raised by an individual or organisation who judges that they have been adversely affected by a Project during any stage of its development. Grievances may take the form of specific complaints for actual damages or injury, general concerns about Project activities, incidents and impacts, or perceived impacts.

This section outlines the approach to managing grievances, which will be used during the Project implementation (post-ESIA phase).

Principles of Grievance Mechanism

A grievance mechanism should be based on the following principles:

- ***Transparency and fairness:*** The process for grievance resolution should be transparent, in harmony with the local culture and in the appropriate language. It should explicitly assure potential users that the mechanism will not impede their access to other judicial or administrative remedies.
- ***Accessibility and cultural appropriateness:*** All stakeholders including every member of a community or group should have access to the grievance procedure. Any individual or group that is directly or indirectly affected by the Project's and its contractors' activities, can raise a grievance.
- ***Openness and communication regularity:*** There should be multiple channels available for individuals and groups to choose their preferred method for lodging grievances.
- ***Channels of communication*** should be kept open throughout the process of addressing each grievance and up to three months after the situation has been resolved.
- ***Written records***: All grievances should be registered on a Complaints Registration Form and tracked through to Complaints Resolution Form. This should include documentation of how the grievance has been resolved.
- ***Dialogue and site visits:*** All grievances should warrant discussions with the complainant and a site visit to gain a first-hand understanding of the nature of the concern. The purpose of the visit is to verify the validity and severity of the grievance.
- ***Timely resolution:*** The Project aims to resolve 90% of grievances within 30 days. Grievances that have not been resolved in this period should at a minimum have been acknowledge and investigated.

Project Grievance Redress Process

The Project Grievance Mechanism will be managed by the CSRL CLO or equivalent personnel and will involve four main steps, that is, reception/ log/ record of the grievance, investigation and site inspection, response, and monitoring and evaluation (see figure below). These processes are elaborated below:

Steps in the Grievance Mechanism

Receiving and Recording Grievances

Verbal, telephonic, email or written grievance shall be received through the various channels and shall be passed on to CSRL via the CLO or equivalent personnel. The grievance shall then be recorded on a Complaints Registration Form and a formal confirmation along with a copy of the form shall be signed by both the complainant and the Project employee receiving the grievance. Details of the grievance shall be recorded.

All grievances shall be registered regardless of whether they are likely to be ultimately deemed as not legitimate.

Site Inspection, Investigation and Resolution

The CLO or equivalent personnel shall organise a site inspection, undertaken either by himself/herself or by an assigned member. The purpose of the site inspection is to check the validity and severity of the grievance. The inspection shall be undertaken within seven days of receiving the grievance. The CLO/assigned individual shall work with other relevant members of Projects to investigate the problem and identify measures to resolve the grievance as appropriate. This could involve provision of information to clarify the situation, undertaking measures to remedy problems and introduction of mitigation measures to prevent recurrence of the problem in the future. Where a grievance is found to be invalid or not severe, a clear explanation shall be provided to the complainant as to why this is the case.

Responses

A formal response detailing how the grievance will be resolved shall be provided to each complainant within 30 days. Where resolution is delayed, the complainant shall be provided with regular (at least monthly) updates on progress. The complainant has the right to reject the resolution proposed in which case the assigned individual should discuss with the complainant expectations and review and update the proposed resolution on the basis of these discussions. If resolution can't be agreed, then the complainant has the right to seek other judicial or administrative redress.

Monitoring and Evaluation

Two to three weeks after implementing the resolution, the CLO or equivalent personnel shall pay a visit to the complainant to ensure that the complainant is satisfied and to gather feedback on the grievance resolution process. The visit shall be registered in the grievance log. If required, further follow up visits will be scheduled.

***Note**: It should be noted that the duration to address grievances is dependent on the nature of the grievance and should be determined in consultation with the complainant.*

Roles and Responsibilities

Implementing the grievance mechanism and recording all grievances is the responsibility of a CLO or equivalent personnel. However, it is likely that at times the CLO or equivalent personnel will need support from the wider Project team in investigating or resolving a grievance.

The roles and responsibilities of Key Project personnel and committees is shown in the table below.

Responsibilities of Key Project Personnel and Committees

Person/Committee	Requirement	Other E&S Responsibilities
Managing Director	Knowledge and understanding	Ultimate responsibility for proposals to the Investment Advisory Committee (IAC) and for ensuring CSRL team discharge their respective E&S duties
Director, Projects and Strategy	Working knowledge	Responsibility for delivery of the facilities and oversight of all associated workstreams, including E&S.

Person/Committee	Requirement	Other E&S Responsibilities
ESG Director	In depth knowledge and implementation	Oversight of the ESMS implementation on a day-to-day basis, including E&S Manager activities
E&S Manager (appointed after Rwanda facilities has been constructed)	In depth knowledge and implementation	Day-to-day implementation of the ESMS with oversight from the ESG Director.
CSRL team members	Working knowledge	Actively involved in E&S issues insofar as they interact with their responsibilities for investments
Portfolio Companies (SPVs) (facility operators) – through the Facility EHS Manager	Understand the requirements of CSRL to reflect in the Special Purpose Vehicle (SPV) ESMS	Develop the SPV ESMS and associated management plans to reflect the ESMP and the risks and impacts identified.
Owners Engineer (OE) EHS Manager	Working Knowledge	Supervision of the EPC Contractor and reporting into the ESMS if facility EHS Manager appointed to carry out this role
EPC Contractor EHS Manager	EPC Own ESMS reflecting requirements of ESMP	EPC EHS Manager responsible for all EHS/OHS oversight during construction and reporting into the OE or Facility EHS Manager

Review of the Grievance Log

It is essential that the grievances are logged and reviewed on a regular basis (at least quarterly) to determine if the same or similar grievances are being recorded at one or more locations. Multiple grievances related to the same or similar issues indicate a systemic problem within the Project which needs to be mitigated through the development of additional Project controls or measures.

MONITORING AND REPORTING

It will be important to monitor and evaluate stakeholder engagement efforts to ensure that the desired outcomes are being achieved, and to maintain a comprehensive record of engagement activities and issues raised.

Suggested monitoring and evaluation activities are outlined below:

- Monitor the grievance register on a regular basis (monthly) in terms of response times to address complaints logged as well as the recurrence of complaints over time. This will inform the Project risk assessment;
- Regular update of the stakeholder register whenever additional stakeholders are identified;
- Keep records of all stakeholder engagement activities: This will be populated with details on information presented, questions, responses and commitments made and actions, and meeting evaluation results, when appropriate. The database will also be used to track frequency of meetings;
- Keep a library (electronic or hard copy) of all communication material. This will include all communication received from the identified Project stakeholders, from CSRL and also from media monitoring (press, radio stories relevant to the Project);
- Develop and assess performance in terms of Key Performance Indicators (KPIs) to be determined by the Project team and CLO or equivalent personnel. For example: number of engagements held per month; timeliness of disclosure of Project information; incorporation of stakeholder views into Project design and ESMP; number of outstanding grievances / number resolved; number of grievances escalated for legal action; and
- Annually review grievance mechanism performance and revise policies, procedures and actions accordingly, with the aim of reducing the number of grievances, improving the process of resolution and improving overall performance.

CSRL may choose to involve Project stakeholders (including affected communities) or third-party monitors in the monitoring of Project impacts and mitigation programmes as the Project develops.

Budget

The budget for the SEP implementation will consider the following items throughout the Project Construction and Operation phase:

- Hiring and training of the SEP CLO or equivalent personnel if not identified within the internal CSRL staff, and of short-term experts to carry out specific tasks;
- Specific consultation activities as outlined in the SEP;
- Consultation materials and tools; and
- Monitoring of the effectiveness of the SEP.

Considerations for Reporting to Project Affected Stakeholders

The following considerations will be helpful when devising the reporting component of this SEP:

- Determine what information needs to be reported to which stakeholders, by what method and how frequently;
- Regularly update the commitments register and disclose progress to affected and interested parties. In particular, publicize any material changes to commitments or implementation actions that vary from publicly disclosed documents;
- Make monitoring results publicly available, especially reports of any external monitors;

- Regularly report on the process of stakeholder engagement as a whole, both to those stakeholders who are directly engaged, and to other interested parties; and
- Translate information reported to stakeholders into local languages and/or into easily understandable formats.

This SEP suggests the adoption of the following forms, as appropriate, for use during the implementation of the Project:

- Stakeholder consultation issues and questions form;
- Stakeholder mapping form;
- Stakeholder consultations registration sheets;
- Stakeholder database including their contact details;
- Summary of stakeholder concerns;
- Stakeholder analysis matrix;
- Stakeholder register;
- Stakeholder commitment register;
- Key stakeholder profile form;
- Complaint registration form;
- Complaint resolution form;
- Standardized communication plan; and
- SEP implementation review form.

APPENDIX D BACKGROUND INFORMATION DOCUMENT USED IN STAKEHOLDER ENGAGEMENTS

BACKGROUND INFORMATION DOCUMENT (BID) USED IN STAKEHOLDER ENGAGEMENT

INTRODUCTION

Cold Solutions Rwanda Limited (hereafter referred to as the Project Proponent / CSRL) has proposed to establish a Temperature-Controlled Storage Facility (TCSF) and associated logistics operations, in the Kigali Special Economic Zone (*KSEZ*), Rwanda. CSRL has appointed Environmental Resources Management Consulting East Africa Limited (ERM) to act as independent environmental and social consultants to undertake the Environmental and Social Impact Assessment (ESIA). Earth Systems are a Rwanda based consultancy firm who ERM has associated with to conduct this ESIA.

The ESIA is being compiled in accordance with Law No.48/2018 on environment, Ministerial order no.001/2019, which establishes the list of projects that must undergo Environmental Impact Assessment (EIA), instructions, requirements and procedures to conduct an EIA. It is also being conducted in line with the requirements of the International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability (2012) and the Integrated Safeguard System of the African Development Bank (AfDB).

As part of the ESIA, stakeholder engagement is conducted, where stakeholders are identified, provided information about the project, and given an opportunity to present their opinions and concerns on the project and suggestions on how best impacts related to the project can be managed. A stakeholder is anyone that is affected by the project's activities.

PURPOSE OF THE BID

The purpose of a BID is to offer preliminary information to stakeholders about the project, and to provide them with information about the ESIA and stakeholder engagement process. The information in the BID is provided to the stakeholders to allow them to participate in the stakeholder engagement process by providing comments and suggestions about the proposed project.

PROJECT DETAILS

The two land options for the proposed Project Site are two separate plots located in the KSEZ Phase II, Masoro. The first land option is a vacant land of approximately 15,000m^2 owned by the Rwanda Printing and Publishing Company. The second option is a privately owned land, two adjacent plots (approximately 19,000m^2 in total) that would be combined into one bigger land parcel. The plots are in proximity with each other. CSRL is currently in discussion with Rwanda Printing and Publishing Press (RPPP) and additional private party regarding land acquisition. The site reconnaissance visit and stakeholder engagement as part of the ESIA process, will subsequently inform the decision process for land acquisition.

The Project entails the construction and operation of an up-to-10,000 m^2 cold storage facility with end-to-end logistics capable of storing up to 10,000 pallets. Key components of the Project include:

- Warehouse facility with different refrigeration temperature zones. Refrigeration technology will be ammonia-based.
- Supporting facilities including plant room, chiller area, power system (roof-top solar), office space, guardhouses and pallet repair areas.
- 8-10 cross-docking bays for loading and un-loading of goods.
- Small WWTP to treat cooling water effluent to national discharge standards and recycle 50% back into the cooling system.
- An integrated power system comprising roof-top solar PV system and a backup generator in case of grid outages (to service 2-3 MW power demand);
- End-to-end customer logistics serviced by up to 12 refrigerated vehicles.

PREDICTED IMPACTS

The proposed TCSF in KSEZ possesses both positive and negative impacts that shall be fully elaborated in the ESIA. Our preliminary findings of potential negative impacts comprise:

- Dust and noise emissions
- GHG emissions
- Stormwater management/ drainage
- Potential of ammonia leakage and associated impacts, considering ammonia is highly inflammable and toxic
- Waste generation with reference to potential organic waste and effluent management
- Increased usage of the KSEZ Infrastructure
- Insufficient water supply during periods of water outages at the KSEZ
- Smell of organic waste during operation
- Occupational Health and Safety (OHS) incidents, accidents and diseases especially for those who will work in the cold storage facility for a long period
- Non-compliance to international and national standards of clientele for food storage, processing and pharmaceutical storage

RELEVANT SPECIALIST STUDIES AND DESIGNS

Concurrently with the ESIA study, other specialised studies and designs are being conducted for the project that will contribute towards a more comprehensive ESIA. These studies and designs comprise:

- Geotechnical study
- Topographic survey
- Architectural designs
- Structural design studies
- Mechanical, Electrical and Plumbing (MEP) designs

STAKEHOLDER ENGAGEMENT SCHEDULE

During the stakeholder engagement process, the consultant intends to engage key stakeholders through Key Informant Interviews scheduled in the period of **1st-4th November 2022.**

The interviews shall involve dissemination of background information of the project and its activities, recording of project related concerns and issues from the stakeholder, predicted positive and negative impacts and mitigation measures against significant negative impacts.

Information collected from the stakeholder engagement shall inform the ESIA and be included in the ESIA report.

Once the ESIA report is completed, it shall be submitted to Rwanda Development Board (RDB) for review and approval. Should RDB have the desire to conduct a public hearing of this ESIA, you will be considered as part of the key stakeholders presented to this ESIA; otherwise, this ESIA report will be available on the RDB E-portal, or at the CSRL project site for reference (see address in the next section).

We therefore encourage you to participate in this stakeholder engagement since your inputs shall facilitate in predicting the project impacts, improving the project design or even suggesting alternatives of how the project can be implemented.

HOW TO BECOME INVOLVED

To become involved in the stakeholder engagement, you may contact the following:

Name: Magalie Ntahokaja, Consultant
Email: magalie.ntahokaja@earthsystemsafrica.com
Telephone: +250 789 150 197
Address: Earth Systems, Cogebanque building, 4th floor, KN 63 Street, Kiyovu, Kigali, Rwanda
Contact CSRL directly: info@coldsolutionseastafrica.com
Address: 2099C Kigali Special Economic Zone, Masoro, Gasabo, Kigali, Rwanda.

We kindly request that you complete the response sheet below for us to include you in current and future stakeholder engagement, where applicable.

RESPONSE SHEET

Please complete this sheet and return it to the contacts mentioned above.

Contact Details	
Name	
Company	
Contact details	
Email	
Address	
District/Village	

What is your interest in this project

Do you have any concerns or issues towards this project?

Do you know any other person or organisation that should be informed of this project?	
Name	
Organisation	
Contact details	
Address	

Would like to participate further in this project?	
Yes	**No**

APPENDIX E DETAILED MINUTES OF STAKEHOLDER ENGAGEMENT MEETINGS CONDUCTED DURING THE ESIA PROCESS

List of Key Informants involved in the stakeholder engagement.

Name	Institution	Position	Contact
Jeanne	PEZ	Managing Director	+250788301100
Eddy Nkurunziza	PEZ	Infrastructure manager	+250788305305
Alexis Nkurunziza	NAEB	Acting Traditional Commodities Division Manager	+250788544109
Innocent Mwarimu	NAEB	Cold chain specialist	+250783727080
Antoine Mukunzi	FDA	Quality control laboratory Division	+250788777431
Phillip	RICA	-	+250788303603
Celsa	RMS	-	+250737886372
Erwin Uwumurenzi	Pharmacist	Pharmacist	+250788302578
Richard Kayibanda	RDB	Strategy and Compliance Officer	+250727775170
Mucyo Jean Claude	REMA	Environmental Auditor	+250252580101
Murwanashyaka Jackson	RMS	-	+250788521218

Stakeholder engagement involved application of mainly the tool of KIIs. The following are minutes of interviews held recapping discussions with the different stakeholders to the project and the list of Key informants engaged during the stakeholder consultation.

Minutes of KII with Prime Economic Zone (PEZ) management held on the 3rd November 2022.

Introduction to the project- The proposed TCSF project was introduced to PEZ management, indicating two plots being considered in the KSEZ phase I and II as the proposed project land of interest. Project activities were elaborated to the stakeholder, questions of project interests were raised, potential negative impacts and responses from PEZ were recorded as follows:

Issues raised-

- The consultant inquired whether the plots zoned acceptable to the line of business of the project, i.e. TCSF. PEZ informed the consultant that these plots were zoned under warehouses and production industries and therefore suitable for the proposed project.
- The consultant went ahead to ask whether there were no restrictions on Ammonia storage and use for refrigeration on site considering that even though it is of high energy efficiency, a Zero ODP and a low GWP it is highly inflammable and toxic if it leaked. PEZ indicated that as long as strict precautions are taken by the developer in storage and use of this refrigerant and fire extinguishing parameters are strictly adhered to, there is no restriction. As a matter of fact, the consultant was informed that within vicinity, another business (called Alpha choices) had individual cold facilities for storage of their frozen pellets.
- In regard to traffic, the consultant raised a possible risk of traffic congestion at the road at the peripheries of the two plots resulting from trucks delivering to or distributing products from the storage facility. PEZ informed the consultant that it was prohibited to park along the road, however, there is space for hire close by planned for public parking yard to handle parking for trucks.
- As for noise, PEZ was asked whether at the time of construction or operation phases of the project, the developer would be required to inform the neighbouring facilities of possible noise. PEZ informed the consultant that KSEZ phase I still has ongoing construction works and is also an industrial park with noise during working hours and therefore does not require permission from neighbours of potential noise as long as it doesn't exceed permissible noise levels in industrial areas.

- Inquiries were made on capacity of power, quantity of water available and consistent availability of these services to the site. PEZ informed the consultant that power and water was regularly available in amounts required by the developer, however, advised on storage tanks for water to avoid issues during outages. As for the power, PEZ advised the developer to consider installation of an individual transformer something they can facilitated the developer to acquire from the Rwanda Electrification Group (REG).

Minutes of KII with NAEB held on the 3rd November 2022.

Introduction to the project- NAEB was informed of a proposed TCSF project to be established in the KSEZ phase I by CSRL, targeting storage of non-processed food, meat for export and local markets and pharmaceuticals for local markets. The consultant inquired on the current status of cold chain processes of foods for export handled by NAEB. Information on cold chain facilities used by NAEB comprised of;

- At NAEB in Gikondo, they offer pack house services that include sorting and cold rooms for storage of fruits and vegetables for export. As of now, the foods include; French beans, avocado, green pepper, passion fruits. No meats or horticulture is stored on these premises.
- The cold room storage is of capacity 700m3, used only for export foods and is not enough for the current demand of storage and expected growing export market. They are able to satisfy the export market in season but not able out of season. They also have cold rooms at the Kigali Airport where sorted foods for exportation are stored.
- The refrigerant used in the cold room is R134a and R404.

Issues of concern in the cold chain business and responses on how they have been handled-

- Disposal of organic waste from off-cuts of foods for example, from pepper and fresh greens.
- Disposal of rejects from sorting of foods for exports.
- R134a is also known as Tetrafluoroethane (CF3CH2F) from the family of HFC refrigerant. It is one of a number of common refrigerants that will be banned from use in new centrifugal and positive displacement chillers as of January 1, 2024. While R404 refrigerant is a popular refrigerant, with a GWP above 2500, the use of R404A is now prohibited in new equipment and restricted in pre-existing equipment.

Solutions proposed:

- Rejects from sorting are sold on local market. They are ready buyers from the common local Nyabugogo market.
- Off-cuts are sold to farmers as animal feeds.

Minutes of KII with RICA held on the 3rd November 2022.

Introduction to the project- RICA was informed of a proposed TCSF project to be established in the KSEZ phase I by CSRL, targeting storage of non-processed food, meat for export and local markets and pharmaceuticals for local markets.

Issues of concern-The consultant inquired on whether there were any licenses required by the developer from RICA before establishing this facility.

Response from RICA-

- RICA informed the consultant that they offer export permits for unprocessed food and in case the developer was involved in exportation, these permits would be required. For example, phytosanitary certificates to avoid spread of pests and diseases from unprocessed foods.

- RICA also advised that in addition to a local license, the developer would require clients storing foods or meat the facility to have International standards for food storage. e.g. HACCP.

Minutes of KII with RMS Ltd held on the 4th November 2022..

Introduction to the project- RMS was informed of a proposed TCSF project to be established in the KSEZ phase I by CSRL, targeting storage of pharmaceuticals for local markets.

Current status- RMS current has 2 cold rooms for storage of pharmaceuticals and vaccines at temperatures -20^{o}C and as cold as -80^{o}C. It is used for storage of National medical supplies that are used at referral, district hospitals and interested private pharmacies. RMS claimed to have more than enough space for storage to satisfy the current market of storage.

Minutes of KII with FDA held on the 4th November 2022.

Introduction to the project- FDA was informed of a proposed TCSF project to be established in the KSEZ phase I by CSRL, targeting storage of non-processed food, meat for export and local markets and pharmaceuticals for local markets.

Issues of concern-The consultant inquired on whether there were any licenses required by the developer from FDA before establishing this facility.

Response from FDA-

- FDA informed the consultant that only handling of processed foods would require local license from FDA before operation and not unprocessed.
- FDA advised that equipment used at the facility would require calibration before and during operation for protection of the consumers.

FDA advised that in addition to a local license, the developer would require clients storing foods or meat the facility to have International standards for food storage. e.g. HACCP.

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