Environmental Social Safeguards (ESS) Management Policy

Infrastructure projects are multi-dimensional and can lead to a range of negative environmental and social impacts if not assessed, managed, and monitored correctly. Catalytic programs strive to be exemplar both on safeguard and mitigation of potential negative externality while delivering positive impact. As such each program of Catalytic operates under the framework of a dedicated Environmental Social Management System (ESMS) to prevent such risks. The general approach is outlined in this document. Catalytic has specialized and dedicated inhouse ES & Impact human resources whose judgment is independent from business considerations. (eg. Today in 2024 Catalytic's Safeguard and Impact Specialist has a B.Sc. in Sustainable Resource Management and a Master of Environmental Science and Management.)

Policy Objective

The objective of this Policy is to ensure that Catalytic projects prevent adverse impacts on the environment and associated communities while maximizing positive outcomes. Catalytic adopts the Gold Standard Safeguarding Principles Assessment to limit or mitigate risk at the project planning stage, as discussed in **Annex 1**.

Environmental Social Management System (ESMS)

Each Catalytic program develops an ESMS framework which is tailored to the specific risks and requirements. The general blueprint for such an ESMS can be found in Annex **2**, which was developed for the Subnational Climate Fund (SCF). Moreover, The SCF was also certified by the Gold Standard at a fund level (refer to **Annex 3**). Catalytic will always push for fund-level certification where relevant pushing the industry standard further.

The general components of a program-level ESMS always include:

- Program structure and background.
- ESS Objectives, Policy, guidelines, and responsibilities.
- Project screening and risk categorization.
- Investment due diligence requirements.
- Monitoring, supervision, and reporting.
- Records, documentation, quality control, and annual reports.

The ESMS also includes a range of Annexes specifically relevant to the program, including frameworks and requirements for project exclusion lists, Environmental Social Action Plans (ESAP), stakeholder consultation, grievance mechanisms, ESMP management plans, etc. Please refer to the blueprint ESMS in **Annex 2**, which is compliant with the GCF's Environmental and Social Safeguarding Policies and Procedures (ESSPP), the IFC Performance Standards (PS1-PS8), and Gold Standard and should serve as a minimum blueprint.

Project Screening, Assessment, and Monitoring

When received, the Catalytic team reviews available project information and identifies the likely ES risk category (A, B, or C), and whether any relevant data gaps exist. High-risk projects (A) are

generally excluded under program policy, if not specific safeguards must be taken as described in the dedicated ESMS. Moderate risk projects always require an Environmental Social Impact Assessment (ESIA), by external consultant, which incorporates Gold Standard Safeguarding Principles and Gold Standard Stakeholder Consultation Requirements. For each ESIA, a subsequent management plan is developed (ESMP) to mitigate risks, including Grievance Mechanism. The ESIA process includes the determination of environmental and social baselines, including gender. An example ESIA/ESMP is provided in **Annex 4**. Low risk projects (C) undergo internal Environmental Social Due Diligence (ESDD).

Prior to any investment, an ESDD Disclosure Report is developed for each project including an ES Action Plan (ESAP) to ensure ongoing impact and sustainability. An example ESDD/ESAP is provided in **Annex 5**. All projects must also comply with the program Gender Policy which generally incorporates 2X Criteria.

Post-investment tracking of impact and ESG KPIs is conducted by our team in accordance with program requirements, and Gold Standard impact methodology.

Environment and Social Safeguard Policy

1. INTRODUCTION

The Gold Standard Safeguarding Principles Assessment is a set of principles, requirements and questions that act as a risk self-assessment for environmental, social and economic aspects related to a planned project. The assessment is used to limit or mitigate risk at the project planning stage.

Together with the other requirements of *Gold Standard for the Global Goals*[1] (stakeholder consultation, grievance mechanism, etc.), the Safeguarding Principles must be applied to every project in the form of a Safeguarding Principles Assessment.

2. PRINCIPLES

The Gold Standard Safeguarding Principles were developed according to industry best practice and refer to UNDP, IFC and World Bank criteria. The principles (and sub-principles) cover social, economic, environmental and ecological risk categories, and provide guidance on how to mitigate potential risks. The risk categories include:

- **Human rights**
- **Gender equality and women's rights**
- **Community health, safety and working conditions**
- **Cultural heritage, indigenous peoples, displacement and resettlement**
- **Corruption**
- **Economic impacts**
- **Labor rights**
- **Climate and energy**
- **Water**
- **Environment, ecology and land use**

The Principles and sub-principles are connected to mandatory requirements. In some cases, specific assessment questions must be answered in relation to those requirements.

[1] *Gold Standard for the Global Goals* is a standard designed to accelerate progress toward climate security and sustainable development. The standard enables initiatives to quantify, certify and maximize their impacts toward climate security and the SDGs, while enhanced safeguards, holistic project design, management of trade-offs and local stakeholder engagement ensure the highest levels of environmental and social integrity. (www.goldstandard.org)

3. SAFEGUARDING PRINCIPLES ASSESSMENT

The Safeguarding Principles Assessment includes the following elements:

- ✓ Principles: The overarching principles and rationale for the inclusion of the given Assessment Questions and Requirements. In some cases, this includes sub-principles.
- ✓ Assessment Questions: The key issues that a Project shall respond to in order to identify key risks and adverse outcomes to the Principles. The Assessment Questions also determine how the Requirements shall be met for each Principle.
- ✓ Requirements: These define what a Project shall achieve through design, management or risk mitigation.

The finished Safeguarding Principles Assessment shall include responses to all Assessment Questions, including justification for response and details of how the Requirements set out against each item shall be met. The Requirements shall be used to guide any re-design / mitigation proposals where a risk is identified.

Each Assessment Question must be answered, and the response justified. Initial answers should be "yes", "potentially" or "no", followed by the detailed justification.

It would be very lengthy to list every assessment question in this document, therefore the table below summarizes the main Safeguarding Principles and sub-principles, while giving an example of sample requirements and sample questions needed to complete the Safeguarding Principles Assessment. The complete list of questions and requirements can be found in the full document[2] *Gold Standard for the Global Goals* Safeguarding Principles.

Table 1: The main Safeguarding principles, sub-principles and mandatory requirements. In some cases, specific assessment questions must be answered in relation to mandatory requirements. To illustrate the breadth of the Safeguarding Principles Assessment, a few sample requirements and sample questions have been included in this table.

Principle/ sub-principles	Sample mandatory requirement	Sample assessment question
Human rights	The Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the *Universal Declaration of Human Rights*	N/A
Gender equality and women's rights	The Project shall not directly or indirectly lead to adverse impacts on gender equality and / or the situation of women	Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?

[2] https://globalgoals.goldstandard.org/100-gs4gg-safeguarding-principles-requirements/

Community health, safety and working conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	N/A
Corruption	The Project shall not involve, be complicit in, or inadvertently contribute to or reinforce corruption or corrupt Projects	N/A
Cultural heritage, indigenous peoples, displacement and resettlement		
Sites of cultural and historical heritage	The Project shall not involve or be complicit in the alteration, damage or removal of any sites, objects or structures of significant cultural heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?
Forced eviction and displacement	The Project shall not involve and shall not be complicit in the involuntary relocation of people	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?
Land tenure and other rights	The Project Developer must hold uncontested land title for the entire Project Boundary to complete Project Design Certification	Does the Project require any change to land tenure arrangements and / or other rights (eg. water access)?
Indigenous peoples	The Project Developer shall respect, protect, conserve and shall not take the cultural, intellectual, religious and spiritual property of indigenous peoples without their free, prior and informed consent	Are indigenous peoples present in or within the area of influence of the Project and / or is the Project located on land / territory claimed by indigenous peoples?
Economic impacts and Labor rights		
Labor rights	The Project Developer shall ensure that there is no forced labor and that all employment is in compliance with national labor and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions	N/A
Negative economic consequences	The Project Developer shall demonstrate the financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period	N/A
Climate and energy		
Emissions	Projects shall not increase emissions over the Baseline Scenario unless this is specifically allowed within Activity Requirements or Gold Standard Approved Methodologies	Will the Project increase greenhouse gas emissions over the Baseline Scenario?
Energy supply	The Project shall not affect the availability and reliability of energy supply to other users	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?
Water		

Impact on natural water patterns / flows	The opinions and recommendations of an Expert Stakeholder (or multiple experts if appropriate) shall be sought and demonstrated as being included in the Project design and Monitoring Plan	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and / or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?
Erosion and / or water body instability	The Project shall demonstrate that measures will be undertaken to ensure that surface and ground waters are protected from the impact of erosion are in place prior to the commencement of the Project	Could the Project directly or indirectly cause additional erosion and / or water body instability or disrupt the natural pattern of erosion?
Environment, ecology and land use		
Landscape modification and soil	The Project shall identify the functions and services provided by the landscape and demonstrate no net degradation in existing landscape function and services	Does the Project involve the use of land and soil for production of crops or other products?
Vulnerability to natural disaster	The Project shall avoid or minimize the exacerbation of impacts caused by natural or man-made hazards, such as landslides or floods that could result from land use changes due to Projects	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, landslides, erosion, flooding, drought or other extreme climatic conditions?
Genetic resources	Projects involving the use of GMOs are not eligible for Gold Standard Project Design Certification	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?
Release of pollutants	All potential pollution sources that may result from the Project that cause the degradation of the quality of soil, air, surface and groundwater within the Project's area of influence shall be identified. Appropriate mitigation measures and monitoring shall be implemented to ensure the protection of resources	Could the Project potentially result in the release of pollutants to the environment?
Hazardous and non-hazardous waste	The Project shall not make use of chemicals or materials subject to international bans or phase-outs. (For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol)	Will the Project involve the manufacture, trade, release, and / or use of hazardous and non-hazardous chemicals and / or materials?
Pesticides and fertilizers	There shall be a 'Chemical Pesticides Policy' that is documented, implemented and regularly updated. This policy shall include at a minimum: a) Provisions for safe transport, storage, handling and application; and b) Provisions for emergency situations	Will the Project involve the application of pesticides and/or fertilizers?
Harvesting of forests	The project shall maintain or enhance biodiversity and ecosystem functionality in areas where improved forest management is undertaken	Will the Project involve the harvesting of forests?
Food	The Project activity shall not negatively influence access to and availability of food for people affected	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?

Animal husbandry	Appropriate space per animal and stocking rates per land unit should be set according to their developmental and physical needs	Will the Project involve animal husbandry?
High conservation value areas and critical habitats	Within the Project the area that is managed by the Project Developer and the area of impact downstream, the following shall be identified and protected / enhanced: Existing patches of native tree species; Freshwater resources including rivers, lakes, etc.; Habitats of rare, threatened and endangered species; Areas relevant for habitat connectivity	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, or key biodiversity areas?
Endangered species	Under no circumstances shall the Project lead to the reduction or negative impact of any recognized Endangered, Vulnerable or Critically Endangered species	Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?

Sub national Climate Fund

Environmental and Social Management System (ESMS) of the Global Subnational Climate Fund

23 February 2021

CONTENTS

LIST OF ACRONYMS

AMR	Annual Monitoring Report
BCS	Broad Community Support
BTOR	Back to Office Report
CDP	Community Development Plan
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DD	Due Diligence
DFI	Development Finance Institution
E&S	Environment and Social
EHS	Environment, Health and Safety
EHS Guidelines	WBG General and Industry EHS Guidelines
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EP	Equator Principles
EPFI	Equator Principles Financing Institution
EPC	Engineering, Procurement, Construction
ESAP	Environmental and Social Action Plan (to identify gaps and ensure compliance with PSs)
ESG	Environment, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan (arising from an EIA or ESIA)
ESMS	Environmental and Social Management System
ESRS	Environmental and Social Review Summary
FI	Financial Intermediary
FPIC	Free, Prior, Informed Consultation
FSC	Forest Stewardship Council
GS4GG	Gold Standard for the Global Goals
HR	Human Resources
IC	Investment Committee
IFC	International Finance Corporation
IFI	International Financial Institution
ILO	International Labor Organization
IP	Indigenous Peoples
IPDP	Indigenous Peoples Development Plan
ISO	International Organization for Standardization
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
L&FS	Life and Fire Safety
LRP	Livelihood Restoration Plan
LTI	Lost Time Incidents
MRV	Monitoring, Reporting and Verification
NGO	Non-Governmental Organization
O&M	Operations and Maintenance
OHS	Occupational Health and Safety

PCALP	Pegasus Capital Advisors
PPE	Personal Protective Equipment
PRI	UN Principles for Responsible Investment
PS	IFC Performance Standards
R20	R20 – Regions of Climate Action
RAP	Resettlement Action Plan
SDGs	Sustainable Development Goals
TOR	Terms of Reference
UN	United Nations
UNGC	United Nations Global Compact
WB	World Bank
WBG	World Bank Group

1 INTRODUCTION

The Global Subnational Climate fund (Global SnCF) is an umbrella fund for the deployment of the R20 Value Chain approach. The Fund will scale-up implementation of mid-size, low carbon and climate resilient infrastructure projects with a focus on developing and least developed countries. The Global SnCF will invest in waste optimization, renewable energy, energy efficient lighting projects and water and sanitation projects in order to scale local contributions to national climate plans and Nationally Determined Contributions, under the Paris Climate Agreement. To identify projects, not-for-profit R20 – Regions of Climate Action (R20) will bring together public and private, local and international players to identify, structure and develop to bankability a pipeline of projects for consideration by the Fund. Grant-funded Technical Assistance (TA) coordinated by R20 will be used to finance feasibility studies.

As part of its commitment to sound E&S risk management, responsible operations and sustainable development, the Fund will operate an Environmental and Social Management System (ESMS) in conformity with the requirements and standards of Development Finance Institutions (DFIs) and in particular those of the Green Climate Fund and IFC Performance Standards. The Global SnCF will aim to be certified compatible with the SDGs, developing projects in-line with Gold Standard for the Global Goals (GS4GG), and reporting performance against project-specific impact criteria. The Fund will thus contribute to several Sustainable Development Goals ("SDGs"), in particular SDG 13, (Climate Action), SDG 7 (access to clean energy), SDG 8 (job creation), SDG 11 (sustainable communities) and SDG 3 (good health and well-being).

2 GLOBAL SNCF – ENVIRONMENTAL AND SOCIAL POLICY

Introduction

The Global Subnational Climate Fund (or "Fund") is committed to tackling climate change and to building a global green economy through action at the sub-national level (regions, provinces, cities). Global SnCF recognizes that sub-national governments around the world are demonstrating the value of fast-tracking the transition to inclusive, resilient low-carbon societies that can help us achieve the objectives of the 2030 Agenda for Sustainable Development, the Sustainable Development Goals (SDGs), and the Paris Climate Agreement.

The ambitions of the Global SnCF are to invest in waste optimization, renewable energy, energy efficient lighting, and water and sanitation projects at sub-national level that meaningfully contribute to the SDGs and allow for credible and verifiable reporting throughout the lifetime of the infrastructure projects.

The global SnCF is managed by Pegasus Capital Advisors, a US based private, alternative asset management firm, in partnership with R20 – Regions of Climate Action, a Swiss-based NGO, who provides the project "deal-flow" in the form of investment-ready infrastructure projects, monitors and reports on Environmental & Social (E&S) performance and SDG impacts. The Fund will work as much as possible with local developers and other project sponsors to promote local capacity.

Pegasus Capital Advisors, L.P. (PCALP) is a private equity firm founded and led by Craig Cogut. Since inception in 1996, PCALP has invested across five private equity funds and currently manages approximately $1.5 billion in assets.[1] The Firm invests in companies within the sustainability and wellness sectors that are seeking strategic growth capital.

[1] As of December 31, 2018, the date of PCALP's most recent regulatory assets under management filing with the U.S. Securities Exchange Commission.

R20 – Regions of Climate Action is a not-for-profit international organization founded in 2011 by the former Governor of California, Arnold Schwarzenegger, in cooperation with the United Nations and a number of leading Regions, Development Banks, Clean-Tech companies, Academia and NGOs, to support sub-national governments around the world to develop and finance green infrastructure projects. Through its unique value chain approach, R20 mobilizes, connects and collaborates with a wide range of actors to fast-track the transition to inclusive, resilient and low-carbon societies. R20 is headquartered in Geneva and has, since its founding, worked on projects in North Africa, Sub-Saharan Africa, East Asia and Latin America.

Principles and values

The Global SnCF is fully aligned with, and contributes to, both R20 and PCALP's respective missions and objectives, which are to accelerate sub-national infrastructure investments in the green economy (*R20*) and to create fundamental value and lasting impact for companies addressing sustainability through creative investment structures (PCALP).

The Global SnCF is committed to responsible investment and expects this same commitment from its partner institutions[2].

The Global SnCF prioritizes effective management of Environmental and Social (E&S) risks and impacts related to its investments. The Global SnCF is particularly concerned with reduction of Greenhouse Gases (GHGs); protection of biodiversity and natural resources; respect for cultural heritage and indigenous peoples; gender mainstreaming; labor standards and working conditions as well as workers' health and safety; community health & safety; pollution prevention; and avoiding involuntary resettlement or loss of livelihood. As such, the Global SnCF will not invest in high-risk projects (so-called Category A projects), and will limit itself to projects with medium to low risks (Category B and C).

The Global SnCF also prioritizes projects that meaningfully and measurably contribute to the SDGs, particularly SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities).

The Global SnCF is committed to maintaining, implementing and continuously improving a documented Environmental and Social Management System (ESMS) to ensure implementation of this policy. The ESMS includes an E&S categorization system that is consistent with the equivalent practices of German Development Bank (KfW), International Finance Corporation (IFC), European Investment Bank (EIB) and other Development Finance Institutions (DFIs).

Scope and applicability

The Global SnCF is focused on water and sanitation, waste optimization, renewable energy and energy efficient lighting projects that are developed and implemented at the sub-national level, and that fall into either Category B (medium risk) or Category C (low risk).

This E&S Policy applies to the Global SnCF, as well as to its portfolio companies/projects.

Exclusion List

[2] Includes sponsors/developers, contractors/sub-contractors, supply chain, financial institutions, renewable energy companies, local government authorities, renewable energy, energy efficiency and waste management service providers, foundations and NGOs.

The Global SnCF has adopted an exclusion list that complies with the Development Finance Institutions' exclusion lists, including IFC, KfW, EIB, European Bank of Reconstruction and Development (EBRD), etc. The Global SnCF Exclusion List clearly prohibits investment in high-risk (Category A) projects. Global SnCF requires its partners to carry out their activities in compliance with national law, and in a manner consistent with the IFC Performance Standards (PSs) and good international industry practice, including relevant World Bank Group Environmental Health & Safety (EHS) Guidelines and the principles and standards contained in the European Union (EU) environmental legislation, where applicable**.** The Fund is also committed to the eight core conventions of the International Labor Organization (ILO) and the International Bill of Human Rights, the key provisions of which are reflected in the relevant IFC Performance Standards. (See ESMS Annex 1 for the full Global SnCF Exclusion List).

The Global SnCF plans to apply the IFC Performance Standards to meet the requirements of EIB, KfW, and Green Climate Fund (GCF), while also respecting host-country regulations, and fully expects its portfolio companies/projects to do the same. The Global SnCF has committed itself also to the Equator Principles (EP) to facilitate private investments of Equator Principles Financing Institutions (EPFIs), the United Nations (UN) Global Compact as well as the UN Principles for Responsible Investment (UNPRI). The Global SnCF is committed to work realistically and pragmatically towards the application of these standards over time.

Policy Implementation
In order to implement the policy, the Global SnCF has developed an Environmental and Social Management System (ESMS) to ensure that the policy is fully implemented throughout the value chain (project identification, development, investment, monitoring and reporting).

The framework of the ESMS includes the following elements:

- E&S Policy
- Procedures, which are fully integrated with the fund's overall investment cycle
    - Transaction screening (incl. exclusion list)
    - Risk categorization
    - E&S due diligence
- Tools
- Guidance materials and reporting protocols

The Global SnCF's unique Monitoring Reporting and Verification (MRV) and certification approach
Global SnCF is committed to delivering meaningful progress towards the SDGs and the Paris (climate change) Agreement, and is therefore working towards a fund-level certification from *Gold Standard for the Global Goals* (GS4GG), a holistic development standard created to ensure that climate action (mitigation and adaptation) also contributes to the SDGs in a measurable, verifiable and certifiable way[3]. By applying GS4GG MRV requirements, the fund will distinguish itself as a leader in the field.

E&S responsibilities

[3] *Gold Standard for the Global Goals* is a next-generation standard that enables initiatives to quantify and certify their impacts toward climate security and the SDGs, while enhanced safeguards, management of trade-offs and local stakeholder engagement ensure Gold Standard continues to deliver the highest levels of environmental and social integrity. https://www.goldstandard.org/

The Global SnCF's Board of Directors has overall responsibility for setting this policy and overseeing its implementation. The Board has identified a qualified E&S Manager (ESM) to manage the implementation of the E&S Policy and ESMS and report to the board about the ESMS performance (see further responsibilities of the ESM in chapter 4 of the ESMS).

The Board of Directors is responsible for ensuring that there is an appropriate budget and resources to implement this policy.

Reporting and accountability
The Global SnCF's Board of Directors and shareholders (or partners) will receive periodic reports on the implementation and effectiveness of the Fund's ESMS and its compliance with this E&S Policy.

The Global SnCF intends to make relevant E&S information available to the public via its dedicated webpage on the PCALP website, and in its publications. This includes publishing the E&S policy on the Global SnCF webpage and inserting summary information in its annual report. In addition, ESS reports of individual projects will be disclosed to the public by publishing them on the PCALP website (www.pcalp.com).

The Global SnCF has a Grievance Mechanism that enables third parties to raise concerns about the Fund's compliance with this policy and/or the E&S impacts of its financed projects. The Grievance Mechanism will be accessible through the Global SnCF webpage. Further the Global SnCF will require all projects to implement a grievance mechanism, in particular about the environmental and social performance, which will be proportionate to the risks and impacts of the project.

Approval
This E&S Policy and ESMS have been provisionally approved by the Global SnCF Board of Directors.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS) - PURPOSE AND APPLICABILITY

The Global SnCF is committed to environmental and social risk management and performance, starting with its own operations. The employees of the Global SnCF are therefore guided by the fund's internal E&S and Human Resource policies, which have been adopted from PCALP and are in line with IFC PS2. These internal policies ensure that the Global SnCF staff are treated fairly, provided with safe working conditions, and practice environmental protection according to host-country laws. Copies of these internal policies are available upon request.

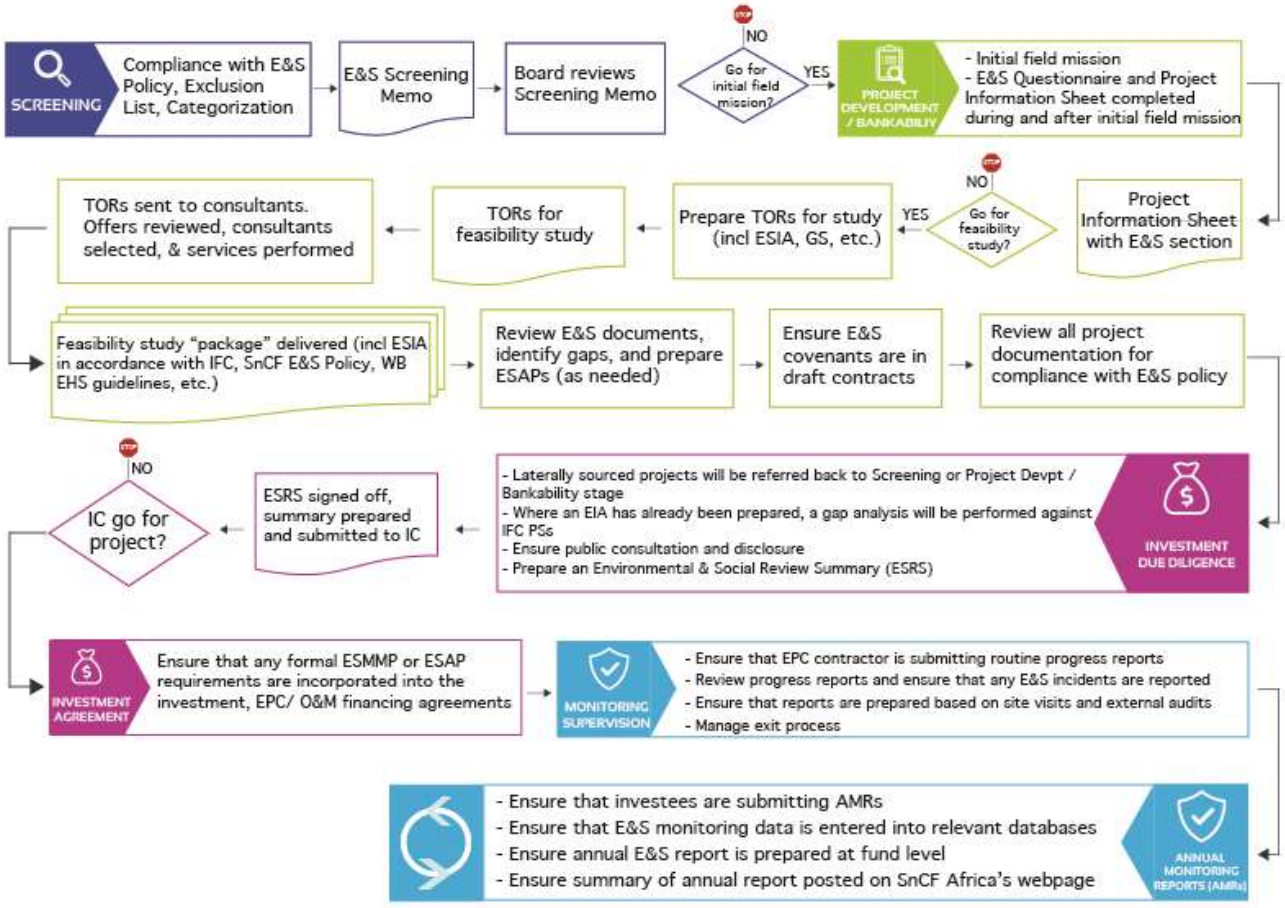
This ESMS comprises a set of procedures that will be followed to ensure that Global SnCF investments meet the Global SnCF's Environmental and Social (E&S) Policy. This includes a process for screening of potential investments against the Exclusion List prior to a Go/No Go decision, to ensure that no investment is made in projects or companies that are operating with excluded activities. The screening process permits the provisional categorization of proposed projects into higher, medium and lower risk (Category A, B or C respectively) projects and that then determines the exclusion of high-risk (Category A) projects. The Global SnCF will exclude Category A projects by avoiding activities with significant adverse environmental and social risks that are irreversible or unprecedented, and in general, the Global SnCF will avoid projects that trigger IFC PS 5 – 8 (i.e. land acquisition and involuntary resettlement, major biodiversity loss, and projects involving indigenous communities or cultural heritage sites). The Global SnCF will focus on projects that fall into medium or low risk categories (B or C) only; these projects will adhere to the level of E&S due diligence required

and undergo the necessary actions to minimize potential impacts. All projects financed by the Global SnCF shall comply with host country regulatory requirements, the relevant IFC Performance Standards and good industry practice, respectively the EHS Guidelines of the World Bank Group.

The ESMS covers initial project assessment, project development, construction and operations, through to project exit (from the fund) and covers the following:

- Initial assessment and screening
- Categorization of potential E&S risks
- Detailed project appraisal/due diligence and determination of E&S standards
- Identification of mitigation, monitoring and management measures required to ensure compliance with appropriate standards
- Informed stakeholder consultation and engagement
- Grievance mechanism
- Inclusion of E&S requirements in project legal documentation
- Monitoring of project performance to ensure compliance with standards through to project exit
- Internal reporting on the E&S performance of financed projects to Global SnCF
- External reporting to stakeholders

Summary of process (see flowchart diagram below):



4 ORGANIZATION AND RESPONSIBILITIES

The Global SnCF has a designated E&S Manager (ESM) who has oversight for implementation of the ESMS. The ESM has access to PCALP and R20 corporate environment and sustainability resources, as well as any required additional local/international external specialists and consultants, to ensure that investments are undertaken in accordance with the E&S policy.

Responsibilities of the ESM include:

- Oversee implementation of the ESMS and its periodic reviews, improvements and amendments;
- Regular reporting to the Global SnCF board about ESMS performance
- Ensure that each project has been screened against the Global SnCF E&S Policy, Exclusion List, and that the proposed project has been categorized for potential E&S risk;
- Ensure that the terms of reference of the ESIA comply with Global SnCF E&S Policy;
- During project due diligence, ensure that the Global SnCF E&S review procedures, guidance and checklists have been followed and that the project's environmental performance/compliance against applicable requirements has been assessed;
- Ensure that projects in the portfolio are supervised and monitored against on-going compliance with the applicable requirements;
- Review all submitted project E&S monitoring reports
- Prepare an annual environment and social performance report, based on the periodic monitoring reports prepared by the investee companies, and other E&S reports that may be required;
- Provide training to the investment team on E&S policy and procedures;
- Work with Global SnCF and PCALP and R20 senior management to ensure that adequate resources are available for effective implementation of E&S policies and procedures;
- Maintain a file of qualified environmental consultants and specialists who can be called upon to assist in conducting environmental reviews, audits and ESIAs; (see Annex 10)
- Ensure that a Grievance Mechanism is in place and that comments are managed in compliance with Global SnCF E&S Policy; (see Annexes 11 and 12)
- Ensuring that project E&S documents are properly managed and filed in the R20 file management system

5 SCREENING AND CATEGORIZATION OF POTENTIAL RISK

This section applies to early E&S review of projects and approval to proceed with the project as an outcome of the early Go/No Go decision meeting. This includes exclusion list screening, initial risk identification, potential E&S issues, assignment of applicable PSs, assignment of provisional E&S categorization and communication of findings to the project manager.

As noted in sections 2 and 3 above, the Global SnCF will only invest in medium and low-risk (Category B or C) projects. These project types have limited adverse impacts, which the Global SnCF expects to be site-specific, few in number and easily mitigated. Examples of B and C project types in the Global SnCF portfolio include improved waste sorting, recycling plants, waste water treatment plants, small-scale solar and wind farms, regenerative agriculture and energy-efficient lighting projects (see full list in risk categorization table below). The Global SnCF will always aim to avoid projects that trigger IFC PSs 5 – 8 (i.e. land acquisition and involuntary resettlement, major biodiversity loss, and projects involving indigenous communities or cultural heritage sites). Some of the typical medium risks potentially associated with Global SnCF project types include economic displacement (eg. for informal waste pickers), unsafe working conditions, or damage to natural resources (eg. during construction of solar and wind farms, or other infrastructure projects), and community skepticism of new technologies perceived to be unsafe (eg. during introduction of novel wastewater treatment technologies). In order to avoid these risks from the very beginning, and to ensure that the impacts are site-specific, reversible, or easily mitigated, the Global SnCF will ensure active community engagement and stakeholder consultations (see Annex 16 on Gold Standard stakeholder

guidelines), a proper ESMS for each investee, as well as an ESIA for all Category B projects (see Annex 2 for terms of reference for ESIA for Category B projects). Annex 16 describes the stakeholder engagement framework relevant to environmental and social risks, and the continuing stakeholder engagement strategy that projects will follow, including once the projects are implemented. The Global SnCF includes a Grievance Redress Mechanism (GRM) at both the fund and project level to allow stakeholders and communities the ability to provide feedback, and to receive responses to that feedback. Annexes 11 and 12 describe the GRM in detail.

Specific to labour and working conditions, PS 2 requirements will be met by ensuring that all investees have an ESMS in place that reflects the Global SnCF ESMS, and that World Bank EHS guidelines are followed. Early detection of risks to workers will be flagged during due diligence via the use of Annex 2 questions and the Annex 3 screening checklist, which will in turn help to mitigate any risks prior to project implementation.

As stated earlier, the Global SnCF Exclusion List clearly prohibits investment in high-risk (Category A) projects and will avoid activities with significant adverse environmental and social risks that are irreversible or unprecedented, including projects that likely trigger IFC PS 5 – 8. In the unlikely event that any Global SnCF activity triggers involuntary resettlement, land acquisition, physical or economic displacement, a resettlement policy framework will be enacted. Please refer to Annex 17 for the terms of reference for land acquisition plan, resettlement action plan, and livelihood restoration plan.

As stated earlier, the Global SnCF Exclusion List clearly prohibits projects affecting indigenous people or involving indigenous communities. However, in the unlikely event that any Global SnCF activity triggers risks related to indigenous peoples, an indigenous peoples planning framework will be enacted. Please refer to Annex 17 for the terms of reference for an indigenous peoples plan. Similarly, in line with the exclusion list, projects damaging biodiversity or protected natural areas will be avoided. In the unlikely event that any Global SnCF activity triggers loss of biodiversity or protected areas, a biodiversity or protected area management plan will be prepared. Please refer to Annex 18 for the terms of reference for a biodiversity / protected area management plan.

The following steps describe the screening and categorization process of the Global SnCF.

Step 1: Proposed projects are screened against the Global SnCF E&S Policy and exclusion list (see Annex 1) at the earliest point of engagement to determine if the project is acceptable. If this involves an excluded activity (including an obvious Category A project), or the project is not in compliance with the E&S Policy, then the project will not be considered any further.

Step 2: For projects not on the exclusion list, the ESM will ensure that an initial assessment of potential E&S risks is made based on the project information provided by the project manager at that stage, and a site visit where applicable. Using the sample checklist provided in Annex 5, the ESM will ensure that a provisional category (either B or C) is assigned to the project and list the anticipated significant E&S risks. The purpose of this is to determine the level of effort in assessing E&S risk during preparation of projects, and the extent of detailed E&S due diligence required to inform Go/No Go decision meetings. The category of overall project risk is according to the table below:

E&S Risk Categorization

Category		Typical classification for infrastructure
A	Business activities with potential **significant** adverse environmental	Waste: - Areas with large vulnerable scavenger communities

	or social risks and/or impacts that are diverse, irreversible, or unprecedented.	- Large Waste to Energy - Incineration (with oxygen) - Landfills - Hazardous waste management - Hospital waste management <u>Renewable energy:</u> - Hydro projects with a dam - Run of river hydro projects - Large Solar farm - Large Wind farm - Projects involving long transmission lines <u>Efficient Lighting:</u> - Area with protected biodiversity that may be affected by light
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.	<u>Waste:</u> - Improving waste sorting - MSW sorting line - Composting plant - Anaerobic Digestion - Recycling plant - Pyrolysis and Gasification (in absence of oxygen) Regenerative agriculture: Water and sanitation: - Waste water treatment plant <u>Renewable energy:</u> - Solar farm (<10MW) - Wind farm (<10MW) - Rural mini grid systems <u>Efficient Lighting:</u> - New street lighting projects
C	Business activities with **minimal** or no adverse environmental or social risks and/or impacts.	<u>Renewable energy:</u> - Rooftop solar installation (<1MW) <u>Efficient Lighting:</u> - Retrofitting of lighting

The screening and categorization process of proposed investments results in classification of potential risk. This determines the level of E&S requirements to be performed as follows:

- All **Category A** transactions (i.e. those likely to trigger PSs 5-8, or in violation of the Exclusion List) will not be supported, and as such will be rejected for consideration by the fund.
- All **Category B** transactions are required to have a formal Environmental and Social Impact Assessment (ESIA) prepared in compliance with the provisions of IFC PS1 and host country regulatory requirements. The ESIA will be performed by a qualified consultant and shall contain an Environmental and Social Management & Monitoring Plan (ESMMP). Annex 2 contains a description of the PSs and requirements, as well as ESIA terms of reference. Annex 6 contains a checklist for checking compliance against the PSs.

- All proposed transactions with a **Category C** classification would be required to comply with host country legislative and regulatory requirements and wherever practical GS Requirements. The projects would be monitored throughout their life to determine whether the risks remain low or whether some additional assessment is required.

Step 3: For projects approved during the initial Go/No Go decision meeting, those designated as Category C will be expected to comply with host country legislative and regulatory requirements. For those approved projects designated as Category B projects, the project ESM will ensure that detailed due diligence is performed, including: Commissioning of ESIA, any additional E&S studies, E&S review of ESIA against the PSs and undertake necessary site visits and stakeholder consultation. This will include the use of external consultants as necessary.

Roles / Responsibilities of ESM

- Ensure that each project has been screened against the Global SnCF E&S Policy, Exclusion List, and then categorized for potential E&S risk;
- Prepare an E&S Screening Memo (ref to screening memo in Annex 5);
- Review TORs for ESIA
- On-going review of the risk categorization, and adjustment as needed;

Records and documentation will include the following:

- E&S considerations wording recorded in the Go/No Go checklist (Annex 5);
- TORS for the ESIA
- When and if a pre-diligence mission is conducted, Scoping Mission BTOR

6 PROJECT DEVELOPMENT / BANKABILITY

This section describes the E&S due diligence procedures from the Go/No Go decision meeting prior to the IC decision meeting. The purpose of the E&S due diligence is to:

- Identify and assess potential E&S risks and/or impacts, both adverse and beneficial, associated with a proposed project;
- Visit the project site, area of influence, associated facilities and project affected persons;
- Ensure that the project proponent / investee has prepared an ESIA and ESMMP in relation to the requirements of the PSs and EHS Guidelines;
- Provide capacity building services, as needed, to enable local implementers (sub-national institutions or project developers) to implement an ESMS and monitor site-specific risks
- Determine areas of non-compliance with the requirements of the IFC PSs and the provisions of the EHS Guidelines;
- Identify actions/information required to address E&S compliance during the due diligence phase;
- Identify actions/information to be addressed in contract legal documentation;
- Prepare, as needed, an ESAP that contains specific tasks designed to close observed gaps in the ESIA;
- Confirm with the Project Lawyer, that the legal and contractual documentation includes appropriate definitions, covenants, clauses and associated elements to ensure that the

project will comply with the PSs, EHS Guidelines, host country law, and the ESAP (if needed);
- Prepare an ESRS before the IC meeting

Step 1: During and after the initial field mission an E&S Questionnaire (see Annex 5) is prepared to describe project risks under the IFC PSs and to identify opportunities to improve performance against these standards;

Step 2: A Project Information Sheet is then prepared to describe project fundamentals, including E&S risks, potential measures to mitigate risks and maximize positive impacts, in support of a Go/No Go decision to pursue the project; (see Annex 13)

Step 3: The Terms of Reference for project feasibility studies are prepared in support of a Go/No Go decision for pursuit of project development; the TORs also include the ESIA in accordance with IFC PS1

Step 4: Feasibility Study TORs are sent to E&S consultants, offers are reviewed and E&S consultants selected and engaged and services performed;

Step 5: Where any gaps are identified against the PSs, an E&S Action Plan (ESAP) is prepared to define actions required to bring the project up to speed vis-à-vis the PSs.

Step 6: On receipt of feasibility study packages, project authorizations are obtained, key contracts with EPC and O&M contractors are drafted, any off-take contracts are drafted, preliminary financial structuring is conducted (including discussions with potential investors) and key covenants[4] are included in contracts to ensure that projects are implemented in compliance with Global SnCF E&S Policy.

Step 7: All project documentation is prepared and reviewed for compliance with Global SnCF E&S policy prior to the start of formal investment due diligence;

Roles / Responsibilities of ESM

- Ensure that the E&S Questionnaire has been properly completed;
- Ensure that the E&S section of the Project Information Sheet reflects the conclusions of the E&S Questionnaire;
- Ensure that the feasibility study TORs include the relevant E&S requirements of Global SnCF E&S Policy;
- Review offers of service from E&S consultants for the completion of project feasibility studies (E&S content);
- Ensure ESMS capacity building services, where necessary
- Ensure that an E&S Action Plan (ESAP) has been prepared, where necessary
- Ensure that key covenants are included in contracts
- Perform final review of project documentation for compliance with Global SnCF E&S Policy.

Records and Documentation

The following information is stored in the Global SnCF documentation filing system including:

- TORs and proposals for ESIAs

[4] Positive covenants, negative covenants, conditions precedent, event of default and ESAP

- ESIAs
- All available E&S assessment information and documents;
- Meeting minutes including actions taken to address recommendations;
- Material project assessment information and ESAPs, including any supplemental actions agreed upon to ensure that the assessment documents are complete;
- Approval of the TORs used for any external expert;
- E&S due diligence mission (Back to Office Report) BTOR.

7 INVESTMENT DUE DILIGENCE

This section describes the process from completion of project feasibility study/bankability through to the investment approval decision. For laterally sourced projects where no ESIA has been prepared, the project will be referred back to section 5 and 6 of this document. For a project where an ESIA has already been prepared, this will be checked for compliance with PS1 requirements and again referred back to section 5 and 6.

Step 1: Category B projects will be assessed against the requirements of the IFC Performance Standards (and appropriate World Bank EHS Guidelines and Good Practice Notes[5]), to determine if there are any performance gaps and the need to impose any additional E&S requirements, as well as the host country regulations, for the proposed project/investment. For projects where an ESIA has been prepared already and approved by the relevant authorities this will be assessed against the requirements of PS1 to ensure that all of the project area of influence has been covered including all associated facilities and project affected persons.

Step 2: Following completion of due diligence, and any additional ESIA work, the ESM will prepare (or will ensure that a project E&S specialist has prepared) an Environmental and Social Review Summary (ESRS), an example of which is provided in Annex 7. This document summarizes the key project E&S risks and any measures required to be implemented during construction and operation to ensure compliance with the PSs, EHS Guidelines, host country requirements and any E&S Monitoring & Management Plan (ESMMP) measures identified in the ESIA. This summary forms the basis of any Environmental and Social Action Plan (ESAP) that would be incorporated into project legal documentation and/or the construction/operational ESMS. Further the ESRS can be used to inform other investors/lenders about the E&S risks and impacts of the project.

Step 3: The ESM will ensure that requirements relating to public consultation and disclosure, as part of the formal ESIA process, as well as stakeholder engagement requirements, are fully met prior to financial close.

Step 4: The ESRS is signed-off and submitted by the ESM to the Investment Committee (IC) meeting which decides whether or not to proceed with the project. The ESRS is attached to the Investment paper with a summary paragraph. The ESM must confirm to the IC meeting that the project either currently meets (or is expected to be able to meet) Global SnCF's E&S Policy once any specified corrective actions to achieve compliance have been completed. The investment paper submitted to the IC will include a brief summary of the due diligence, project categorization, with justification,

[5] For example, for Solar PV projects: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_utility-scale+solar+photovoltaic+power+plants

together with any ESMP/ESAP requirements. Any questions that arise prior to the IC meeting will be directed to the ESM.

Roles / Responsibilities of ESM

- Ensure that processes are happening as described in Section 5 and 6 of this document
- Prepare list of additional assessment activities where required, including the scope of any additional activities referenced in the ESRS;
- Ensure that public consultation and disclosure requirements are followed as part of the ESIA process
- Ensure that an ESRS is prepared, signed off and submitted to the IC
- Ensure availability to IC for any questions prior to and during IC meeting, and complete any follow-up actions resulting from the meeting

Records and Documentation

- ESRS filed in the documentation system
- Any IC questions received
- Responses given prior to, during or after the IC meeting

8 INVESTMENT AGREEMENT AND CORRECTIVE ACTIONS TO ACHIEVE COMPLIANCE

Step 1: Once the final decision to invest in a project has been made by Global SnCF's IC, the ESM will liaise with the Project/Investment Manager and Project Lawyer, to ensure that any formal ESMMP or ESAP requirements (an example is provided in Annex 8) are incorporated into the investment, Engineering Procurement Construction (EPC) / Operation & Maintenance (O&M) financing agreements / contracts / sub-contracts.

Step 2: Global SnCF will then negotiate and agree with the various project partners the EHS provisions and investment conditions in the financing agreements. These typically consist of standard E&S terms applicable to all investments, and project-specific and reporting conditions identified during the E&S due diligence. They are to be represented in legal documents for example as general E&S definitions, representations and warranties, disbursement conditions, contract documents for the EPC/O&M contractors and/or covenants regarding compliance with the requirements as defined by Global SnCF's E&S Policy. Critical mitigating actions that address gaps with Global SnCF's E&S Policy will be included in any investment agreement as conditions of investment. For category B projects, these are to be included as an ESAP.

Roles / Responsibilities of ESM

- Ensure that E&S terms are incorporated into the legal agreement
- Ensure that the investment agreement with project partners includes relevant E&S terms, according to Global SnCF's E&S Policy, and that mitigation actions are summarized and included as an ESAP

Records and Documentation

- Investment decision meeting conclusion and any follow-up steps
- ESAP and investment agreement/contractual E&S covenants

9 MONITORING, SUPERVISION, REPORTING

The E&S performance of projects and project contractors will be supervised and monitored to ensure compliance with the investment agreement and any ESIA, ESMMP and ESAP requirements based on the following activities:

- Periodic site visits by Global SnCF ESM (or third-party consultant) during construction, according to the level of EHS risk and to check on ESMP and ESAP implementation;
- Submission of routine progress reports by the EPC contractor on any actions and monitoring requirements documented in the agreed ESAP to rectify outstanding EHS issues;
- Reporting of any EHS incidents (environmental, social, fatalities) to Global SnCF within 3 days of occurrence
- Commissioning of external environmental audit reports by the ESM as may be deemed necessary;
- A back to office supervision report (BTOR) will be prepared based on site visits, external audits and actions agreed to rectify outstanding E&S matters;

Step 1: During the construction phase, periodic supervisory visits will be decided by the ESM in accordance with the construction schedule.

Step 2: Post construction, category B projects will be visited at least once every two years, or more frequently, depending on the type of project, country, specific location, the nature of any outstanding EHS issues – and also whether annual monitoring reports are providing sufficient monitoring data to judge whether it is in compliance with local regulatory as well as investment agreements conditions.

Roles / Responsibilities of ESM

- Ensure that periodic site visits are taking place in accordance with the construction schedule and ESAP item completion dates
- Ensure that EPC contractor is submitting routine progress reports
- Review progress reports and ensure that any E&S incidents are reported
- Ensure that reports are prepared based on site visits and external audits
- Ensure Grievance Mechanism is in place, being implemented effectively and that grievances are being addressed
- Ensure that a formatted report structure is submitted by the EPC contractor during construction and the O&M contractor during operations. The report will contain evidence of project E&S performance and compliance with the ESAP, contract and regulatory conditions
- Ensure E&S exit reports are prepared, restorative actions have been done, etc. (Ensure exit checklist has been completed)

Records and Documentation

- Project reports, BTORs, ESAP status reports filed in the Global SnCF documentation system

10 RECORDS, DOCUMENTATION AND QUALITY CONTROL

The ESM is the focal person to ensure quality control for E&S related tasks, outputs and documents. Document control is essential. All E&S studies, ESIA documentation, project mission objectives, BTORs, ESRSs, ESAPs, E&S clearances and associated information are stored in the Global SnCF document recording system managed by PCALP.

The ESM, with support from the Global SnCF administrative support staff, ensures that due diligence, monitoring records, and collected documents are maintained and kept up-to-date.

The ESM will ensure that the ESMS procedures are periodically reviewed (see Review template in Annex 14). The ESMS is subject to continuous review and improvement; it will be subject to external review after three years of operation.

Roles / Responsibilities of ESM

- Ensure that all E&S studies, ESIAs, BTORs, ESRSs, ESAPs and other types of E&S documentation are stored in the Global SnCF document recording system
- Ensure that monitoring records and other documents are maintained and kept up-to-date
- Ensure that ESMS procedures undergo periodic internal audits
- Ensure that ESMS procedures undergo an external review after three years of operation

Records and Documentation

- E&S studies, ESIAs, BTORs, ESRSs, ESAPs, E&S clearances, internal ESMS audits and external ESMS reviews filed in the Global SnCF documentation system

11 ANNUAL MONITORING REPORTS (AMRs)

Step 1: In addition to periodic supervision and monitoring reports prepared by the contractors/operators, category B projects will be required to submit an annual monitoring report (AMR) detailing progress against any ESMMP and ESAP items, and to report on compliance with contractual conditions, including the following content:

- Post-construction completion report indicating compliance with local regulations and receipt of operating permits/operating licenses;
- Any required environmental monitoring data (e.g., air/water quality, waste water, solid waste, noise);
- OHS and Lost Time Incidents (LTI) data (accidents, fatalities, life and fire safety).

Step 2: Annual E&S Report of the Global SnCF. An annual performance report will be prepared detailing how the fund has implemented the ESMS throughout the year, any changes, improvements and details of the E&S performance of the investee companies/projects, in accordance with DFI reporting requirements.

Step 3: A summary of the Annual E&S Report will be posted on the Global SnCF webpage, located on the PCALP website. (webpage address to be inserted).

Roles / Responsibilities of ESM

- Ensure that projects are submitting AMRs to Global SnCF
- Ensure post-construction completion reports, and other reports, are submitted

- Ensure that E&S monitoring data is entered into relevant databases / monitoring software
- Ensure that an annual E&S report is prepared at fund level
- Ensure a summary of this annual report is prepared and posted on Global SnCF's webpage

Records and Documentation

- AMRs filed in the Global SnCF documentation system

12 ROLES AND RESPONSIBILITIES OF PROJECT STAFF AND OTHER STAKEHOLDERS IN REGARDS TO ENVIRONMENTAL AND SOCIAL SAFEGUARDS

This section describes the roles and responsibilities of project staff and other stakeholders regarding environmental and social safeguards, including the implementation and application of environmental and social reviews, monitoring, supervision and reporting.

In general, the project proponent or subnational implementing agency is responsible for implementing an ESMS that mimics the Global SnCF ESMS. In this case, the project proponent bears the cost of implementation, monitoring and reporting relative to his/her project.

Project proponents and/or subnational implementing agencies: are expected to manage project E&S risks and impacts during construction and operation, and to maintain and update an Environmental and Social Management System (ESMS) that mimics the Global SnCF ESMS. An important component of management of its E&S performance is the engagement with the project affected

communities through the disclosure of relevant project information, effective stakeholder engagement and informed consultation and participation (ICP). In particular, the project proponent and/or subnational implementing agency is expected to:

- Assist the contractor/operator in developing measures to avoid, minimize, mitigate, or compensate for E&S impacts consistent with the PSs;
- Review potential impacts and/or risks and proposed mitigation measures;
- Where possible, identify opportunities to improve E&S outcomes;
- Ensure compliance with the ESMS requirements;
- Ensure that any identified potentially significant E&S risks are disclosed to stakeholders and that the ESIA has been made publicly available following a comprehensive consultation process
- Include E&S requirements in the relevant legal and contractual documentation;
- Monitor and document project E&S performance throughout the project lifetime;
- Ensure that monitoring and reporting will be undertaken against agreed ESMPs, and other frameworks if applicable (eg. RAPs, LRPs, Land Acquisition Plans, Biodiversity Action Plans, Indigenous Peoples Plans, etc.)
- Appoint an internal E&S Coordinator at local level to assist with all of the above

Local project E&S coordinator: is expected to work on behalf of the project proponent and/or subnational implementing agency to ensure that the project's ESMS is properly implemented, including all of the points listed above. In particular, the local project E&S coordinator is expected to:

- Coordinate with the E&S Manager of the Fund
- Ensure all project documents are filed in accordance with ESMS filing protocol;
- Assist with planning the E&S due diligence mission to assess on-site key E&S issues, and develop an agenda for the mission;
- Determine the type and significance of risks and impacts that the proposed project is likely to generate on Affected Communities;
- Determine the need for ICP and BCS, including justification for the approach;
- Undertake a Broad Community Support (BCS) assessment to determine if BCS exists in Affected Communities for the proposed project, by conducting interviews with the Affected Communities;
- Determine the need for FPIC;
- Request peer review and ensure key issues that emerge are resolved;
- Record decisions on PS applicability, degree of compliance with the PS, EHS Guidelines and Industry Sector Guidelines requirements in the ESRS;
- Provide E&S inputs for the contractual documentation;
- Assist with drafting the ESAP or contract conditions to close gaps described in the ESRS including task description, and completion date for review and approval;
- Assist with the provisional and final E&S Category to the project;
- Implement specific project reporting needs;
- Identify if external expertise is needed and develop terms of reference accordingly;
- Monitor the functioning and effectiveness of the community engagement processes;
- Site monitoring visit planning;
- Coordinate monitoring activities and ensure that projects are being monitored; and
- Ensure that all relevant E&S documents, project reports and Annual Monitoring Reports (AMRs) are filed in the documentation system.

Civil society and others. The project proponent or subnational implementing agency is strongly encouraged to utilize the expertize and community knowledge of local civil society, and other local

experts, especially in regards to stakeholder consultation and ongoing monitoring of project impacts. An example of tasks that could be carried out by local civil society or local experts includes:

- Undertaking of monitoring site visits;
- Assist the local E&S coordinator with collecting information or status updates for annual monitoring reports, such as EHS accidents and incidents reporting, material community grievances, material labor force grievances, any non-compliances/violations with host country requirements, and any additional E&S information.
- Undertaking a Broad Community Support (BCS) assessment to determine if BCS exists in Affected Communities for the proposed project, by conducting interviews with the Affected Communities;
- Determining the need for FPIC (when applicable);
- Community engagement and information disclosure;
- Assisting with stakeholder consultation and participation process, and identification of vulnerable groups (consultation and mitigation);
- Other tasks deemed relevant to local stakeholder consultation and community support

13 INDICATIVE COSTING OF ESMS IMPLEMENTATION

ESMS activities will be mostly concentrated on the first 5 years of project portfolio implementation. After that, the E&S Manager will mainly focus on annual reporting and grievances that may arise.

Activity	**Annual cost in USD$**	**Total cost for the 5 first years in USD$**
Piloting and fine-tuning of ESMS ("learning by doing") for the first six months	15,000	NA
Training of Global SnCF employees at operational level (initial & recurring trainings)	10,000	50,000
Capacity-building services with local project proponents (ESMS workshops and hands-on E&S training during project site visits)	20,000	100,000
Fund's E&S team	300,000	1,500,000
External experts (eg. to review ESIAs, ESAPs and other docs)	100,000	500,000
Logistics, travel, etc.	40,000	200,000
Annual report (monitoring, design, publishing)	40,000	200,000
TOTAL PER YEAR	**525,000**	
TOTAL OVER 5 YEARS		**2,550,000**

ANNEX 1: GLOBAL SNCF EXCLUSION LIST

Global SnCF does not finance, directly or indirectly, category A (high-risk) projects, including projects involving the following:

- Activities with significant adverse environmental and social risks that are diverse, irreversible or unprecedented
- Non-legal and non-sustainable waste projects, including:
    - Transboundary movements of waste prohibited under international law, unless compliant with the Basel Convention and underlaying regulations
    - Large unsorted municipal waste incineration projects
- Large Hydro projects including dam construction and run-of-river hydro
- Projects involving physical or involuntary resettlement
- Activities prohibited by host country legislation or international conventions relating to the protection of biodiversity resources or cultural heritage
- Destruction of High Conservation Value areas or areas with major biodiversity
- Projects that may cause significant adverse impacts (equivalent to category A), or projects equivalent to category B, that do not acquire prior informed consent from indigenous peoples, in line with the GCF Indigenous Peoples Policy
- Projects adversely affecting cultural heritage or involving cultural heritage sites
- Projects which result in depriving people's individual rights and freedom, or violation of human rights
- The production of, or trade in, any product or activity deemed illegal under host country (i.e. national) laws or regulations, or international conventions and agreements, or subject to international phase out or bans, such as:
    - Production of or trade in products containing PCBs[6]
    - Production of or trade in pharmaceuticals, pesticides/herbicides and other hazardous substances subject to international phase-outs or bans
    - Production of or trade in ozone depleting substances subject to international phase out
    - Trade in wildlife, production of or trade in wildlife products regulated under CITES[7]
    - Trade in goods without required export or import licenses or other evidence of authorization of transit from the relevant countries of export, import and, if applicable, transit
- Production or trade in weapons and munitions
- Production or activities involving harmful or exploitative forms of forced labour or child labour as defined in the ILO[8] core labour standards
- Production of cosmetics etc. involving testing on animals
- Commercial logging operations for use in primary tropical moist forests
- Production of wood or wood products other than from sustainably managed forests (enterprises with less than 50% FSC[9]-certified production are excluded)
- Any business activity involving pornography
- Production or distribution of racist, anti-democratic and/or neo-Nazi media
- Production or trade in alcoholic beverages (excluding beer and wine)

[6] Polychloride Biphenyls

[7] the Convention on International Trade in Endangered Species of Wild Fauna and Flora

[8] International Labour Organization

[9] Forest Stewardship Council

- Production or trade in tobacco
- Gambling, casinos and equivalent enterprises
- Production or trade in radioactive materials
- Production or use of or trade in unbonded asbestos fibres or asbestos-containing products
- Drift net fishing in the marine environment
- Shipment of oil or other hazardous substances in tankers which do not comply with IMO[10] requirements

[10] International Maritime Organization

ANNEX 2: IFC PERFORMANCE STANDARDS AND ESIA TERMS OF REFERENCE

Introduction

In 2012 the IFC updated the Environment and Social Sustainability Performance Standards (PSs) and associated documents as:

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

These eight PSs define clients' responsibilities for managing their environmental and social risks. The most significant change is the role expected of 'the client'.

Summary:

The following sections summarize the Performance Standards. These should be read in conjunction with the PS Guidance Notes as well as the various IFC Good Practice Notes that have been developed by IFC.

Action: Each question should be answered as yes or no, justification provided, and supporting documents attached as necessary

PS 1: ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

Environmental and Social Assessment and Management Program

- Does the investee company/EPC Contractor/M&E/Civils/O&M have a management system in place to identify and manage the environmental and social impacts and risks of project construction and operations? Does the system identify mitigation and performance measures that address the impacts and risks of operations? (For example, Quality Assurance; Environmental, Health, Safety & Social)
- How often does the investee review and update the system?
- Does the company have resources earmarked to support this?
- Do they have any best practice certification (ISO)?

Organization

- Are there persons responsible for implementation of the management system?
- Include an outline of the persons responsible including S&E management.

Training

- Does the company have training programs in place for the persons responsible?

Community Engagement

- Does the company have a community engagement process for affected communities?
- If applicable, does this process ensure free, prior and informed consultation of the affected community?
- Does the company have a grievance mechanism in place for affected communities?

Monitoring

- Does the company have procedures in place to monitor management program performance?

Reporting

- Is appropriate environmental and social performance information periodically reported internally to senior management, investors and stakeholders as relevant?

PS 2: LABOUR AND WORKING CONDITIONS

Human Resources Policy and Management

- Does the investee company have an HR policy? Is it clearly understandable and easily accessible to all employees? Does it provide information on rights under national labor and employment law?
- Has the company documented and communicated working conditions and terms of employment to all workers directly contracted? Does this include guidelines on working hours, overtime procedures, wages paid, types of contracts, frequency of payments and sick and maternity leave?
- What is the language of communication with workers and employees?
- Are the terms and conditions in accordance with any collective agreement with workers?
- Has the company implemented a grievance mechanism to review and address employee complaints?
- Is there a person responsible to review complaints and follow up on them in a timely and transparent manner?

Worker's Organization

- Does the company comply with national law in allowing workers to form and join workers organizations and bargain collectively? Does it have a workers' organization or trade union? If yes, when was this formed? What percentage of the workforce are members? Are members entitled to special benefits?

Non-Discrimination and Equal Opportunity

- Does the company have documented transparent procedures with respect to discipline, performance and grievance procedures to ensure that employment decisions are not made on the basis of personal characteristics unrelated to job requirements? Does the company have any preferential employment policies in place?

Retrenchment

- Does the company anticipate retrenchment of a significant number of employees? If yes, is there a retrenchment procedure in place? Have workers been consulted appropriately. IFC has a produced a Good Practice Note for managing retrenchment.[11]
- If the investment entails an expansion will this create additional jobs?

Protecting the Work Force

- Does the company ensure child or forced labor is not used directly, or through contractors or in the supply chain? Does the company check the ages of all employees? Does the company ensure that young workers (15-18 years) are not employed in dangerous work? Does the company commit contractors and suppliers to not use child or forced labor?

Occupational Health and Safety

Does the company:

- provide its workers with a safe and healthy work environment? Does this include providing workers with and mandating that workers use personal protective equipment (PPE)? Has the company taken steps to prevent accidents, injury, and disease by minimizing the causes of hazards?
- conduct appropriate monitoring and inspections to ensure worker safety? Does this include monitoring ambient and workplace exposure to noise, and workplace illumination, air quality and temperature as applicable?
- track and report on rates of injury, occupational diseases, lost days, and absenteeism and number of work-related fatalities? Does the com0pany track staff turnover?
- have training programs in place for workers in occupational health and safety?
- have a fire, life and safety plan?

PS 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION

Pollution Prevention, Resource Conservation and Energy Efficiency

- Provide details about the company's resource use including sources and estimates of daily use for energy and water. Has the company ever conducted a cleaner production audit? Do the company's operations incorporate energy efficiency and water conservation measures? (See also. guidance under PS 6, Management and Use of Renewable Natural Resources.)
- Does the company monitor air and water emissions? Is ambient air quality monitored on site?
- Does the company apply project-specific pollution prevention and control techniques?

Waste management

- Does the company have procedures for storage, handling, and disposal of solid wastes? Does this include waste management techniques?
- Does the company treat effluents prior to disposal?

Hazardous Materials

[11] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_retrenchment

- Does the company have procedures for storage, handling and disposal of hazardous materials?

Emergency Preparedness and Response

- Does the company have an emergency prevention, preparedness and response plan?

PS 4: COMMUNITY HEALTH, SAFETY AND SECURITY

Community Health and Safety

- Are there any communities in close proximity to the investee company's facilities? What is the relationship of the company with the local community? Does the company take community, health and safety considerations into account in the context of its operations? Do its requirements take into account company infrastructure and equipment safety, hazardous material release, transport and disposal considerations, natural resource use and community exposure to disease?
- Has the company designated contact persons within the organization responsible for receiving and responding to questions, concerns or complaints raised by nearby communities or other stakeholders? If yes, are the contact details for these persons will be displayed prominently on the company facility signage?

Emergency Preparedness and Response

- Does the company's emergency preparedness and response plan take into account risks and impacts from project activities to local communities? Does this include the requirement to inform affected communities of significant potential hazards in a culturally appropriate manner?

Security Personnel Requirements

- Does the company engage security personnel to provide security services at their facilities? If yes, do the contract provisions include guidelines on how security personnel shall interact with communities in close proximity to the facility?
- Are security personnel armed? If yes, has the company provided training on the appropriate conduct towards workers and the nearby communities? Have there been any allegations of unlawful and/or abusive acts by security personnel towards workers or nearby communities? If yes, how were these dealt with by the company?

Action for PS 5-8:

1) **Does or will the project trigger PS 5 through 8 at all?**
2) **If no, the following questions are not applicable to the project and shall be ignored**
3) **If yes, each individual question below should be answered accordingly, justification provided, and supporting documents attached as necessary**

PS 5: LAND ACQUISITION AND INVOLUNTARY RESETTLEMENT

Project design

- Is there any land acquisition for the proposed investment? If yes, what was the previous use of the land and how was the land acquired? Was the land acquisition managed by the government?

Compensation and Benefits for Displaced Persons

- Has there been any physical and/or economic displacement and resettlement as a result of land acquisition for this project? If yes, provide detailed information with regard to the type of displacement and the displaced persons and communities.
- Has the investee company engaged with the displaced persons and communities and/or provided opportunities to derive appropriate development benefits from the project? If yes, provide details.

Consultation and Grievance Mechanism

Has the investee company:

- Disclosed all relevant information, consulted with affected persons and communities and facilitated their informed participation in the decision making process relating to resettlement?
- Established an effective grievance mechanism?

Resettlement Planning and Implementation

Has the investee company:

- Considered alternative designs to avoid or minimize economic and physical displacement?
- Identified persons to be displaced by the project and those eligible for compensation and assistance through a baseline census with appropriate socio-economic baseline data? Has the census established the status of displaced persons according to their legal rights or claim to land?
- Prepared a Resettlement Action Plan (RAP) or resettlement framework (if physical displacement is involved) that mitigates the negative impacts of displacement, identifies development opportunities and establishes entitlement for all affected persons?
- Developed procedures to offer compensation or other assistance that will establish entitlement for affected persons or communities (if economic but not physical displacement is involved)? Has this included providing replacement property, compensation, targeted assistance and/or transitional support in accordance with PS 5 requirements?
- Has the cut-off date for eligibility been established or disseminated?

Private Sector Responsibilities under Government-Managed Resettlement

- Was resettlement managed by the government? If yes, has the company supplemented government actions and bridged the gaps (if applicable) between the government-assigned entitlements and procedures and the requirements of this PS?

PS 6: BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

Protection and Conservation of Biodiversity

- Has the investee company identified and addressed the impacts on biodiversity as part of their operations?
- Will modified, natural and critical habitat (as defined by PS 6) be impacted by the company's activities?

  -In the case of natural habitat, has the company considered alternatives and adequately mitigated any potential degradation?

  -In the case of critical habitat, has the company suitably determined that there will be no measurable adverse impact on species or habitat?

- Does the company conduct any operations in legally protected areas? If yes, has the company addressed the requirements for legally protected areas outlined in PS 6?
- Has the company identified any alien species which may be intentionally or unintentionally introduced through its activities? If intentional introduction of alien species is planned, has this received appropriate government regulatory approval?

Management and Use of Renewable Natural Resources

- Has the investee company identified renewable natural resources which it will use, and committed to managing them in a sustainable manner?
- In the case of projects in natural and plantation forests, has the client obtained independent certification to ensure that these natural forests and plantations are being managed sustainably? If no, or pending then has a time-bound phased action plan been developed to achieve such certification?
- In the case of projects in freshwater and marine environments, has the client obtained independent certification of the sustainable management of these aquatic resources, or provided other independent studies to slow these resources are sustainably managed?

PS 7: INDIGENOUS PEOPLES

Avoidance of Adverse Impacts

- Is it likely that Indigenous Peoples (IPs) will be adversely impact as a result of the project's operations? Does the ESIA conducted by the investee company identify the adverse impacts to IPs and identify ways to avoid these where possible?
- Has the investee company compensated in a culturally appropriate manner consistent with the guidance provided in PS 7.

Consultation and Informed Participation

- Has the investee company established a process for Informed Participation through an FPIC process centered on mitigation measures, sharing of developmental benefits and opportunities and implementation issues as outlined in PS 7?

Impacts on Traditional or Customary Lands under Use

Has the investee company:

- informed IPs of their rights according to national laws including those recognizing traditional/customary rights?
- offered at least compensation and due process to those with full legal title to land together with culturally appropriate development opportunities

- provided land-based compensation or compensation-in-kind in lieu of cash compensation where feasible?
- entered in good faith negotiations with affected communities and documented their informed participation and the successful outcome?

Relocation of Indigenous Peoples (IPs) from Traditional or Customary Lands

- Has the investee company conducted a successful good faith negotiation, applied the requirements of the Performance Standards and, where feasible, ensured that IPs can return to their traditional or customary lands should the reason for their relocation cease to exist?

PS 8: CULTURAL HERITAGE

Protection of Cultural heritage in Project Design and Execution

- Is the project located in an area where cultural heritage is expected to be found? If yes, has a Chance Find Procedure been established as outlined in PS 8?
- Is it possible that the project may affect cultural heritage or has critical cultural heritage been identified where significant damage is unavoidable? If yes, has the company complied with the requirements of PS 8?
- Is the project located in a legally protected area or a legally defined buffer zone? If yes, has the company complied with requirements of PS 8?

Project use of Cultural Heritage

- Has the investee company identified proposed project use of cultural resources, knowledge, innovations, or practices of local communities embodying traditional lifestyles for commercial purposes? If so, has the client informed these communities of:

  -their rights under national law

  -the scope and nature of the proposed commercial development

  -the potential consequences of such development

- If commercialization has proceeded, has the investee company:

  -entered into good faith negotiation with the affected community embodying traditional lifestyle

  -documented their informed participation and successful outcome of the negotiation

  -provided fair and equitable sharing of benefits from commercialization

Global SnCF will use IUCN's guidance note to prepare the ESIA ToRs (see below).

Environmental and Social Impact Assessment (ESIA)

I. Context

This document provides guidance for conducting an Environmental and Social Impact Assessment (ESIA) and for preparing an ESIA report. It also serves as guidance for drafting the Terms of Reference for an ESIA. An ESIA is applicable for projects that have been identified by the Environmental and Social Management System (ESMS) screening as high or moderate risk projects, requiring full or a partial ESIA respectively[1]. The purpose of the ESIA is to assess and predict potential adverse social and environmental impacts and to develop suitable mitigation measures, which are documented in an Environmental and Social Management Plan (ESMP).

The scope and depth of the ESIA depends on the nature, complexity and significance of the identified issues, as established by the ESMS screening. For a full ESIA the scope is defined by a scoping study which involves relevant stakeholders to confirm the risks identified by the ESMS screening, to set priorities for the ESIA and to determine the types of assessments required for the ESIA. The key elements, methodology and outputs of a scoping study are described in the ESMS Guidance Note on Scoping.[2]

II. Key elements of an ESIA and an ESIA report

The key elements of an ESIA and its report are described in this section. These elements must be thoroughly covered by a full ESIA for a high-risk project. A partial ESIA does not require as much background and baseline data as a full ESIA; the elements usually not covered in a partial ESIA are marked with an asterisk. The order and manner in which the information is presented in an ESIA report should be based on this outline.

1. Non-technical summary

Summarise significant impacts in a way that can be easily understood by a non-technical audience, in particular local stakeholders. The summary includes how the identified impacts should be managed and points out any outstanding issues that require further action.

2. Project description

Concisely describe the main parameters of the proposed project, including:

- The project proponent and other project partners and their respective roles in the project
- The project's geographic location, preferably illustrated with appropriate maps[3]
- Summary of the project (project objective(s), expected results/outcomes, outputs and main activities)
- Implementation arrangements

*3. Analysis of policy, legal and administrative framework**

Describe the policy, legal and administrative framework within which the project takes place and identify any laws and regulations that pertain to environmental and social matters relevant to the project. This includes regulations about environmental and/or social impact assessments to which the

[1] A partial ESIA typically focusses on the few delineated environmental or social impacts/ issues identified by the ESMS screening.
[2] Available at www.iucn.org/esms
[3] When including maps in the ESIA report, make sure that the sites mentioned in the report are clearly identified on the maps.

project must adhere as well as laws implementing host country obligations under international law. Explain the requirements of any co-financing partners, if applicable. Where pertinent, take into account legal frameworks for promoting gender equality. Flag any areas where the project might fall short on compliance.

4. *Stakeholder identification and analysis*

The purpose of the stakeholder identification and analysis is to understand potential impacts on stakeholders and to clarify who should be involved in the ESIA process and how. This is done by listing all relevant stakeholders – based on any existing stakeholder analysis developed during the project design process and on general knowledge about the project context and its main stakeholders – and elaborating the following:

- stakeholders' interests in and expectations from the project;
- how they might influence the project (positively or negatively);
- a first appraisal or estimation of how their livelihoods could be impacted by the project (positively or negatively); and
- how they should be involved in the ESIA based on the information in the three items above.

Stakeholders should be disaggregated between men and women where relevant and feasible. It is useful to present the key findings of the stakeholder analysis in a matrix. The stakeholder analysis is considered a work in progress that should be adjusted as more information becomes available during the ESIA process and beyond.

5. *Environmental and social baseline*[1]

Describe and analyse the environmental and social context in which the project operates. While some broad contextual information is necessary, the analysis should focus on the immediate context of the project site and aspects that relate to the identified impacts in order to be relevant to decisions about project design, operation, or mitigation measures. For general context data, consult – to the extent possible – secondary data and existing analyses, including the situation analysis carried out as a previous project design step. To understand the context at the project site, it is usually necessary to collect primary data at the site.

The main purpose of this section of the ESIA report is to provide an understanding of current environmental and social conditions that form the baseline against which project impacts can be predicted and measured during project implementation. For moderate-risk projects that require only a partial ESIA and no scoping study, this section also provides an opportunity to substantiate the results of the ESMS screening by confirming potential impacts and/or identifying other potential impacts.

The scope of the baseline analysis depends on the nature of the project and the issues identified by the screening. The analysis might cover a range of physical, biological, socio-economic and cultural features potentially affected by the project. The ESMS Guidance Note on Social Impact Assessment (SIA)[1] provides complimentary guidance including a non-exhaustive list of topics relevant for understanding social impacts.

6. *Assessment of environmental and social impacts*

This step is the heart of the ESIA: it itemizes and describes the identified impacts, makes predictions in terms of their probability and assesses their significance. In accordance with the ESMS Policy Framework, the assessment should give particular attention to impacts related to the ESMS standards such as adverse impacts on people's livelihood through access restrictions or resettlement, on indigenous peoples, on cultural heritage or on biodiversity. However, thematic coverage of the ESMS

[1] See ESMS Guidance Note on Social Impact Assessment, available at www.ifad.org/ems

also involves other potential social impacts including impacts on women or vulnerable groups or risks triggered by the project failing to take climate change effects into consideration. While the ESIA's terms of reference already establishes the main impacts to be covered by the assessment – based on the screening (or scoping for high-risk projects) – it is important to understand that an ESIA is an iterative process during which new and more detailed information may be obtained and additional significant issues might come up (e.g., as part of the baseline analysis).

When analysing the risks not only direct impacts should be taken into consideration but also indirect impacts such as inadvertent knock-on effects or cumulative effects that materialise through interaction with other developments, impacts occurring at the project site or within the project's wider area of influence[5] and impacts triggered over time[6].

Project impacts can be analysed using a range of methods from simple qualitative analysis to detailed quantitative surveys or modeling. The data collection methods and analytical tools used and the depth of analysis should be commensurate with the type and significance of the impacts. It should allow rigorous assessment of the significant impacts using qualitative and to the extent possible also quantitative methods. The report should describe the methods chosen for data collection and analysis and the rational for the choice of method; it should further describe the quality of available data and, where applicable, explain key data gaps and uncertainties associated with predictions.

Participatory research and assessment tools should be employed wherever sensible to increase stakeholder's understanding of the project, provide opportunity for raising issues and enable participation of affected groups in the identification of mitigation measures, as discussed in section 9.

To assess the significance of an impact, the following criteria should be considered:

- sensitivity of the receptor;[7]
- magnitude of the anticipated impact taking into account severity of impacts, the expected duration and scale and whether or not the impact is reversible;
- probability of the impact occurring; and
- potential that the impact will present a reputational risk for IUCN.

Understanding the significance of impacts is important for prioritising the need for mitigation measures. To aid in evaluating significance, two methods with templates are suggested in Annex A: a significance ranking tool using the criteria above (Table A1) and a risk assessment framework (Table A2). Other methodologies for significance assessment and prioritization may be equally useful.

7. Analysis of alternatives

The purpose of the analysis of alternatives is to identify other options, including not implementing the project, to achieve the project objectives and compare their impacts with the original proposal. This step is required only for high-risk projects where the identified impacts are very significant.

The analysis systematically compares feasible, less adverse, alternative technologies, designs, operations and sites – including the "no project" option – to the proposed project in terms of:

- their effectiveness of achieving the project objectives as well as potential trade-offs;
- their potential environmental and social impacts;
- the feasibility of mitigating these impacts;
- operational requirements and their suitability under local conditions;
- their institutional, training, and monitoring requirements;

[5] For a definition of the project's wider area of influence, see the glossary in the ESMS Manual at www.iucn.org/esms.
[6] Although the future cannot be foreseen, the assessment should consider scenarios that are technically or scientifically robust enough to make predictions.
[7] A receptor is an aspect of the existing biophysical and social environment (i.e., people, social groups, species populations or ecosystems) affected by or interacting with the project activities.

- their estimated cost-effectiveness; and
- their conformity to existing policies, plans, laws and regulations.

The analysis should recommend the preferred alternative and state why it was chosen.

8. Environmental and social management plan (ESMP)

A main output of the ESIA process is a strategy for managing risks and mitigating impacts. The identification of mitigation measures is done in consultation with affected groups and is guided by the mitigation hierarchy. The mitigation hierarchy implies that all reasonable attempts must first be made to avoid negative social or environmental impacts. If avoidance is not possible without challenging the conservation objective of the project, measures should be taken to minimise the impacts to acceptable levels and address remaining residual impacts with adequate and fair compensation measures.

The risk management strategy is documented in an Environmental and Social Management Plan (ESMP) that describes: the mitigation measures developed during the ESIA, an implementation schedule and required resources and responsibilities. The technical and operational feasibility, cultural adequacy and sustainability of proposed measures must be demonstrated as well as requirements for capacity building and institutional strengthening, where relevant. The ESMP should also indicate how the measures designed to avoid impacts will be monitored for effectiveness. The guidance note for developing the ESMP provides further instructions and includes templates for the ESMP and for monitoring the plan.[9]

9. Results of stakeholder consultations

Stakeholder engagement is a key principle of the ESMS and an important procedural tool for a successful ESIA. It improves understanding of local conditions and stakeholders' concerns and is essential for identifying effective strategies for mitigating negative impacts. Involving affected groups in decision making gives them more confidence and security, improves the legitimacy of the project and helps build constructive relationships among stakeholders.

The ESMS Manual defines requirements for stakeholder engagement by establishing minimum provisions for disclosure and consultation during the steps of the project cycle.[10] These provisions are particularly relevant for the ESIA process: the provisions for consulation and disclosure are more stringent for high-risk projects (full ESIA) than for moderate-risk projects (partial ESIA). Tables 5 and 6 in the ESMS Manual synthesise these requirements.[11]

During the ESIA, consultations should concentrate on potentially affected groups, indigenous peoples and civil society organizations; the stakeholder analysis supports the decision of whom to consult. The consultation process must be culturally appropriate, non-discriminatory and gender sensitive. It should assure that all people whose lives might be affected by the project are properly consulted to verify and assess the significance of impacts and that all affected groups are provided the opportunity to participate in the development of mitigation measures.

The intensity or depth of stakeholder engagement should be appropriate to the complexity of the project and the significance of the identified risks and tailored to individual groups. The general logic of stakeholder engagement that should be followed is described in Figure 3 in the ESMS Manual. It is important to be mindful of the resources and time required of stakeholders. The consultation process is best scheduled in iterative steps, first seeking initial inputs, then feed-back on first assessment results and suggestions for mitigation actions, and concluding with a final stakeholder meeting to gather feed-back on the draft of the ESIA report, the ESMP and other action plans, as relevant.

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[9] See ESMS Guidance Note on Developing and Monitoring an ESMP, available at www.ifc.org/esms
[10] See sections 4.2.7 and 4.6 of the ESMS Manual, available at www.ifc.org/esms
[11] See ESMS Manual, section 4.6, available at www.ifc.org/esms

If the Standard on Involuntary Resettlement and Access Restrictions or the Standard on Indigenous Peoples are triggered, consultations should fully adhere to the Free, Prior and Informed Consent Principle. Guidance is provided in the ESMS Manual and in a separate guidance note.[1]

The final ESIA report should document the results of the consultations carried out with stakeholders and project-affected groups and provide a summary of the concerns raised and an explanation of how these results have been addressed in the ESIA and the ESMP. The description should specify how women were included in the consultation, taking into consideration their gender-specific knowledge, roles, responsibilities and potential impacts.

III. Other items to be specified in the terms of reference for an ESIA

The actual terms of reference for an ESIA must be tailored to each project as the scope and depth of the assessment depend on the nature, complexity and importance of the issues emerging from the ESMS screening. For high-risk projects, the scope of the ESIA will be determined in detail by the scoping study preceding the ESIA.

The terms of reference for an ESIA usually include the items listed below. The terms of reference for moderate-risk projects are less comprehensive than those for high-risk projects; hence elements marked with an asterisk are usually not required for a partial ESIA.

- A summary of the main project features
- A list of applicable national and local ESIA requirements, where available and relevant*
- A list of the key issues that emerged from the ESMS screening and scoping to be analysed in the ESIA
- A description of the required elements of the ESIA (see section II, 3-9) and specification of the content of any additional specialist studies (if applicable) to be undertaken as part of the ESIA
- Provision of methodological guidance (if applicable) for the overall ESIA and specialist studies (e.g., gender responsive analysis)
- Specification of the type of environmental and social expertise required by the ESIA expert/team
- A preliminary list of feasible project alternatives including a "no project" option and requirements for their assessment*
- Specification of types of required consultations with affected people, communities and other parties including final stakeholder meeting(s) for gathering views on the draft ESIA and ESMP
- The requirement for preparing an ESIA report and other documents or action plans (as needed) and for rigorously indicating accuracy, reliability and sources of the data used
- A budget and schedule for the ESIA providing sufficient time and funds for effective stakeholder consultation.

Carrying out an ESIA requires a technical team with appropriate qualifications and experience in qualitative and quantitative research techniques and familiarity with the thematic and regional or local context; the team should have experience with participatory design and assessment methodologies, with gender analysis and gender-responsive project design and, where relevant, with indigenous peoples' issues.

[1] ESMS Guidance on Free, Prior and Informed Consent will be available at www.ifad.org/ems

ANNEX 3: INDICATIVE CHECKLISTS DURING DUE DILIGENCE: CONTRACTORS/PROJECT PARTNERS

Checklist 1: Health and Safety Risks

S = Satisfactory

U= Unsatisfactory

NA= Not Applicable

Issue	Suggested questions to identify relevance of issues to business viability	Rating S/U/NA	Notes/Action required
Consultation with workers	Is occupational health & safety included in work-force consultation?		
Inspections	Are there regular and effective health and safety in-spection and compliance checks?		
Pending Pros-ecution	Is there any previous or pending prosecution relating to breach of health and safety by project sponsors or company?		
H&S Record	What is current health and safety record of sponsors or company?		
Communities	Are there any health and safety risks to local com-munity associated with the investment?		
Training pro-grams	Is general and specific safety training provided?		
Lifting of loads	Are mechanical lifting aids provided where neces-sary?		
Accident re-porting and investigation	Are accidents reported? Are statistics maintained? Are investigations carried out?		
Maintenance schemes	Is there a program of preventative maintenance?		
Machinery safety: guards and electrical	Are machinery guards fitted? Is the workplace tidy? Is lighting adequate?		
Permit to work system	Is a “permit to work” system used to ensure that equipment is safe before maintenance is started?		
Electrical safety, over-head lines, cabinets	Is the electrical installation of a reasonable stand-ard? Are electricians trained? (IEE standards)		

Issue	Suggested questions to identify relevance of issues to business viability	Rating S/U/NA	Notes/Action required
Fire and explosion hazards	Are there fire and explosion hazards such as dusts (flour, sugar), LPG, fuels, solvents? Is there an alarm system? and is fire-fighting equipment provided (adequate water supply, extinguishers)? Where will contaminated fire water drain to?		
Transport of people and materials	Is there a required standard for company drivers? Are there medical and competence tests?		
Toxic dusts, fumes	Are hazardous chemicals/materials (e.g. solvents, dusts, asbestos, pesticides) used and are workers exposed to them?		
Personal protective equipment provision	Is protection/ventilation/extraction installed or is appropriate personal protective equipment provided?		
Noise levels	Does the noise exposure of employees exceed 85 dB(A)? If so, are earmuffs or plugs provided and worn?		
First Aid provision	Is first aid equipment provided? Are there trained First Aiders?		
Health surveillance plans	Are pre-employment and routine medicals (e.g. hearing loss, chemical exposure, lung function) carried out where necessary?		
Emergency plans and drills	Are fire/safety drills carried out? Are there emergency plans for on-site and off-site incidents?		

Checklist 2: Environment Risks

Issue	Examples of questions to be used to identify the relevance of these issues to the business viability (bullets contain potential follow up questions)	Rating S/U/NA	Notes/Action required
Applicable Laws	Local environmental laws, standards and regulations applicable to the investment. Have project sponsors or company obtained relevant up to date environmental permits and certifications? Relevant international environmental standards? Use of WBG EHS Guidelines?		

Issue	Examples of questions to be used to identify the relevance of these issues to the business viability (bullets contain potential follow up questions)	Rating S/U/NA	Notes/Action required
Risk Management	What is the process for identifying, mitigating and managing environmental risks?		
Water quality	Is the consumption of water or disposal of aqueous effluent likely to impact on other users of this supply? Source/s & quantity of water required? Treatment of effluent or discharged to public sewer?		
Environmental Track Record	Have there been any reported environmental incidents with the project sponsors or company in the last 5 years? If yes provide details.		
Biodiversity	Has the transaction identified and addressed all biodiversity impacts of its operations through an environmental impact assessment?		
Resource Conservation	Are records and targets for energy and other resource use?		
Local air quality	Is the air quality at the workplace, on the site and surrounding area satisfactory? Dust, other emissions or fumes from vehicles, plant or equipment? Effective mitigation systems are installed?		
Ozone depletion	Are CFCs used in refrigeration or air-conditioning systems? Alternatives considered?		
Hazardous substances	Are hazardous substances involved in the process? Are they managed effectively? Are PCBs present in transformer oils? Tanks bunded?		
Solid waste	Waste minimisation programme: recycling, reuse of packaging material?		
Contaminated land	Are there signs of contamination of land from past activities on site (agricultural & industrial)?		
Amenity impact	Are there noise or other nuisances?		

Checklist 3: Social Risks

Issue	Examples of questions to be used to identify the relevance of these issues to the business viability	Rating S/U/NA	Notes
Low Wages	Are wages at or around the level of the minimum wage? Likely to fall below the level sufficient to meet basic needs?		
Communities Development	Does the investment contribute to any community development programmes through financial donations or in other ways? What impacts may the company's activity have on local communities and other stakeholders?		
Policy	Effective HR policy in place?		
Contracts	Are proper labour contracts in place for staff?		
Consultative Work-Place Structures	Is there an effective grievance mechanism? (Particular care required in countries with legislation restricts trade unions.)		
Child labour	Children under 18 employed? If so, for what kind of work and how old are they?		
Discrimination	Does the company discriminate on the basis of gender, race, colour, disability, political opinion, religion or social origin?		
Forced labour	Is any of the work extracted under threat of force or penalty e.g. does the employer hold workers' identity documents?		
Retrenchment	Are job losses expected to arise from the investment (e.g. privatisation, restructuring)?		
Access to facilities or services	Standard of existing or proposed facilities or services – housing, education, health, food, water?		
Non-Local Work Force	Will the business (or sub-contractors) import a non-local work-force requiring accommodation and access to facilities for a period of more than 3 months?		
Resettlement/economic displacement	Are people being moved from or excluded from the site of the investment, particularly on an involuntary basis?		

Issue	Examples of questions to be used to identify the relevance of these issues to the business viability	Rating S/U/NA	Notes
Cultural property	Does the investment affect a religious or ancestral site, or natural resources ascribed by local people with cultural/sacred significance?		
Indigenous peoples	Does the investment affect indigenous people or involve indigenous communities?		

ANNEX 4: FORM OF CONSULTANTS TOR FOR AN E&S REVIEW

Terms of References for Environmental and Social Due Diligence Assessment for [Project]

01 May 2023

Global SnCF requires the services of an independent environmental and social consultant ("a Consultant") to perform an environmental and social due diligence ("ESDD") assessment of a proposed investment in **[describe]** company ("the Company").

The following Terms of References are applicable to the execution of the requested services.

NOTE - THE POINTS BELOW TO BE ADAPTED AS NECESSSARY

1. Description of the Project

[Insert description].

2. Objective

The requested services are to support **Global SnCF's** investment decision and follow-up approach by independently assessing and verifying the Project against the reference framework elaborated in Section [3], identifying compliance gaps, necessary mitigation and follow-up actions.

3. Reference Framework

The reference framework will be (adapt as necessary):

- Applicable local, national and international environmental and social (including occupational health and safety) legislation.
- [Fund's Policy]
- [IFC Performance Standards, 2012].
- [The World Bank Group General Environmental, Health and Safety (EHS) Guidelines,]
- [The relevant World Bank Group Industry Sector EHS Guidelines].
- [Other international standards which may be applicable]

4. Team

The assignment has to be carried out by suitably qualified independent environmental and social experts, with appropriate background and experience in the sector and region.

[**Add any specific requirements**].

5. Scope of Work and Tasks

The scope of work comprises the independent assessment of all material environmental and social aspects of the Project, within the framework stipulated in Section [3].

Specifically, this work will entail (*examples below*):

1) [Review the Company's environmental and social programs and management systems, and implementation, and **[assess compliance with / benchmark them against**] the Reference Framewrok);

2) Review processes, procedures and the institutional capacity of the Company to manage environmental and social risks and impacts in accordance with Good International Industry Practice (GIIP), as defined by the IFC Performance Standards and the World Bank Group EHS Guidelines (both General and Industry Sector guidelines.

3) Assess the capacity of the **[Company/Project]** to **[comply/operate accordance with/develop a Project in accordance with]** GIIP, identifying gaps to compliance and recommending actions as necessary with implementation prioritisation;

4) Reviewing and, where necessary, recommending improvements to the **[Environmental and Social Impact Assessments (ESIAs) / Other documents]** and the proposed environmental and social management plans for **[the Project]**; and

5) Perform site visits to assess the implementation of the Company's environmental and social management systems and plans and the adequacy of the Company's management practices against the Reference Framework;

6) Identify opportunities for value addition through environmental and social improvements and initiatives.

7) Prepare an Environmental and Social Action Plan (ESAP) describing the actions to be implemented to achieve compliance with the Reference Framework within a reasonable timeline. Refer to Appendix A.

8) Conduct a review to identify from publicly available media sources if there are any potential environmental and/or social issues, including NGO attention/campaigns, or items that may lead to reputational risks to the Company and/or Global SnCF.

The assessment will comprise of **[X]** tasks (*examples below*):

A. [*Kick-off Meeting*:
[Describe].

B. *Assessment of the Company's capacity and track-record*:
[Describe].

C. *Information Review*:
[Describe].

D. *Site Reconnaissance*:
[Describe].

E. *Preparation of the deliverables (see Section [6])*:
[Describe].

6. Reporting and Deliverables

The Consultant will provide (*examples below*):

i. [*Preliminary Summary of Principal Findings* – shortly after conclusion of the site reconnaissance, the Consultant will provide a concise back-to-office report focusing on principal findings and identified risks, impacts and opportunities. A meeting/conference call will be scheduled between **Global SnCF** and the Consultant to discuss the principal findings and the timeline for preparation of the ESDD report; and

ii. *Environmental and Social Due Diligence Report* – the Consultant will provide a detailed report fully reflecting the scope of work. Where compliance gaps with the Reference Framework and/or opportunities for value addition through E&S improvements have been identified these will be presented in Environmental and Social Action Plans (using a tabular format substantially similar to the example presented in Annex A)].

7. Timeframe

[Insert].

8. Proposal

The proposal for the ESDD should contain the sections listed below:

1) Scope of Work:
The scope of work should include a description of the specific activities that will be performed in order to accomplish the required tasks identified in Section 5. This should include any proposed site visits/reconnaissance, documents to be reviewed, interviews, etc. If the Consultant feels that additional tasks or components within a required task are suggested or warranted, these should be stated and delineated as "Optional Tasks".

2) Project team and qualifications:
This should include the name of the principal staff members and any sub-contractors, and a brief description of their role within the project team. Qualifications of staff should include relevant technical capabilities, specific previous project experience similar to this Project, specific in-country experience and knowledge, specific language skills.

3) Estimated costs:
A total lump sum cost estimate (not to be exceeded), in US Dollars, must be provided for the required scope of work. A breakdown of the estimated costs by task must also be presented (i.e. tabular format) and should include Direct Labour Costs (number of hours or days per staff and their associated unit costs) and Indirect Labour Costs (i.e. travel, per diem, sub-contractors, etc.).

4) Conflicts of interest:
As part of the proposal, the Consultant shall also confirm that they do not have a conflict of interest and that they are able in a position to provide an adequate, accurate and objective review.

5) [ADD NEW SECTIONS AS APPROPRIATE]:

Environmental and Social Action Plan (ESAP) indicative template

The report should include a standalone Action Plan to address the gaps identified against the Reference Framework. This Action Plan will diligently aggregate the gaps identified in the report in a tabular format (such as the example presented below), set realistic deadlines for completion of the actions (with the emphasis on achieving compliance as soon as possible), and include the information shown below. The Measure and/or Corrective Action description should be succinct, but suitably detailed, accurate and clear and referenced against the appropriate standard.

Additional notes on the Action Plan:

- Where issues are identified that carry associated high risks or potential for regulatory action, addressing these issues should be prioritised in the Action Plan.
- The Action Plan should take into account any additional staff or skills required by the Company E&S management.
- Where appropriate, larger or longer-term Measures or Corrective Actions should be further broken down to milestone to facilitate monitoring of progress in achieving them.
- In preparing the Action Plan, it should be taken into account whether significant synergies to achieve compliance with both international standards (i.e. IFC Performance Standards) and national requirements exist.

Reference standard / law / regulation	Actions	Priority (Low, Medium, High)	Responsibility	Deadline	Completion indicator	Estimated cost

(i) Go/No Go Meeting

Project Name:	**Country:**	**Project ID:** **#**	**Exclusion List Screening: Y/N** **Global SnCF E&S Policy: Y/N**
			Provisional Categorization: **A, B or C**
E&S Appraiser:	**E&S Approval:**	**Date of Review:**	**Project Status:** **Proposed/Construction/Operation**
Proposed Investment:			**TA to be Provided: Y/N**

Brief Project Description:

Summary of potential E&S Issues:

At appraisal the key issues were identified as:

-
-
-
-

Issue	Questions used to assess the potential EHS risks and determine the overall risk category	Risk H/M/L Or NA	Risk Justification
ENVIRONMENTAL ISSUES			
Area of Influence	Does the project have a large area of influence and have all associated facilities including the RoW for any transmission lines been assessed?		
Pollution	Potential for causing significant pollution of air, soil or water.		
Habitat loss and impact on biodiversity	Is the project expected to result in a change in land use e.g. forest to agricultural; agricultural to more intensive agricultural/industrial? Will this involve land clearance and/or the risk of water pollution? Use of or impact on particularly fragile areas such as wetlands?		
Resource use	Is the consumption of water or disposal of aqueous effluent likely to significantly impact on other users of this supply?		
Natural Resources	Is the project expected to cause any of the follow-ing:		

	Land Erosion? Fish stocks decline? Deforestation? Land reclamation?		
Supply chain	Are materials from sustainable sources?		
Contaminated land	Are there signs of contamination of land from past activities on site (agricultural & industrial)? Are tanks bunded? What is the standard of storage of drums? Are there obvious leaks? Paper/Plastics general disposal? Industry/Chemical Waste disposal? Organic Waste Contamination? unsafe/contaminated water		
SOCIAL ISSUES			
Substantial job losses	Are substantial job losses or economic displacement expected to arise from the project or restructuring of the investment? Or have they occurred already as a result of the project?		
Project and Associated facilities, area of influence and TLs: Resettlement	Will the project's construction or operations result (or have already resulted) in resettlement or economic displacement of people, involuntary or otherwise? If so, was there/will there be a Resettlement Action Plan (RAP)/Livelihood Restoration Plan (LRP)? Was compensation given? Has this been monitored? Are there any outstanding claims/liabilities?		
Stakeholder concerns	Are stakeholders (including NGOs) currently expressing any concerns about the project or any of the proposed investors/contractors? Are such concerns likely?		
Exploitation of labor	Is there a risk that the project would not be constructed/operated in line with fundamental ILO conventions/PS2 requirements? E.g. child or forced labor, discrimination, refusal to allow freedom of association and collective bargaining		
Indigenous peoples	Will/has the project affected indigenous peoples? Has there been Free, Prior and Informed Consent (FPIC)? Is there Broad Community Support for the project?		
Cultural Heritage	Is the project in allocation that affects or likely to significantly affect cultural heritage		

(ii) Final Investment Decision Meeting

Project Name:	**Country:**	**Project ID:** **#**	**Exclusion List Screening: Y/N**
			Final Categorization: **A, B or C**
E&S Appraiser:	**E&S Approval:** **Y/N**	**Date of ESRS:**	**Project Status:** **Proposed/Construction/Operation**
Proposed Investment:			**TA to be Provided: Y/N**

Brief Project Description:

-
-

ESIA Prepared and in compliance with IFC PSs?

ESMMP Prepared and agreed by Global SnCF's ESM, and investees? contractor/operator?

All relevant licenses and permits in place?

Summary of potential E&S Issues (taken from the ESRS – attached to this document):

At appraisal the key issues were identified as:

-
-
-
-

Has an ESAP for the project been prepared (attach)?

If so, has it been agreed and signed-off by the contractor/operator?

E&S Specialist confirms that E&S risks can be managed in accordance with Global SnCF's E&S Policy and relevant standards?

Project Name:	Country:	Project ID: #	E&S Category: A, B
E&S Ap-praiser:	E&S Approval:	Date of Review:	Project Status: Proposed/Construction/Operation
Proposed Investment:			TA to be Provided: Y/N

1. ENVIRONMENTAL SOCIAL AND GOVERNANCE ISSUES

Brief Project Description:

Summary of E&S Issues:

At appraisal the key issues were identified as:

-
-
-

Investment:

Exclusion List: Y/N

ESAP: Y/N

Go Recommendation: Y/N

2. E&S ASSESSMENT

Assessing Environmental and Social Issues

- **Satisfactory (S):** the project is in material compliance with the PSs, WBG EHS guidelines, host country regulations and has construction/operating permits.
- **Partly Unsatisfactory (PU):** the project is currently not in compliance with the PSs and WBG EHS guidelines and/or host country laws, but deficiencies will be addressed through an ESAP
- **Unsatisfactory (U):** the project is not in compliance with the PSs and other E&S requirements and significant corrective action is required. Investment may be no go
- **Not Applicable (NA):** not relevant to the project.

Environmental & Social Assessment - Example	S
1. Assessment and Management System of E&S Risks and Impacts	S
1.1. S&E Assessment	S
1.2. Management Program & quality of ESAP	S

1.3. Organizational capacity	S
1.4. Training	S
1.5. Community Engagement	S
1.6. Monitoring	S
1.7. Reporting	**S**
2. Labor and Working Conditions	S
2.1. Human Resource Policy and Management	S
2.2. Worker's Organizations	S
2.3. Non-Discrimination and Equal Opportunity	S
2.4. Retrenchment	S
2.5. Protecting the Work Force	S
2.6. Monitoring	S
2.7. Occupational Health and Safety	**PU**
3. Resource Efficiency and Pollution Prevention	S
3.1. Resource Conservation and Energy Efficiency	S
3.2. Air emissions	S
3.3. Waste waters	S
3.4. Solid wastes	S
3.5. Hazardous Materials	PU
3.6. Emergency Preparedness and Response, fire and life safety	**PU**
4. Community Health, Safety and Security	S
4.1. Community Health	S
4.2. Safety and Security	PU
4.3. Emergency Preparedness and Response	S
4.4. Security Personnel Requirements	**NA**
5. Land Acquisition and Involuntary Resettlement	NA
5.1. Compensation and Benefits for Displaced Persons	NA
5.2. Consultation and Grievance Mechanism	NA
5.3. Resettlement Planning and Implementation	NA
5.4. Physical Displacement	NA
5.5. Economic Displacement	NA
5.6. Private Sector Responsibility under Government Managed Resettlement	**NA**
6. Biodiversity Conservation & Sustainable Management of Living Natural Resources	NA
6.1. Protection and Conservation of Biodiversity	NA
6.2. Management and Use of Renewable Natural Resources	**NA**
7. Indigenous People	NA
7.1. Avoidance of Adverse Impacts	NA
7.2. Information Disclosure	NA
7.3. Consultation and Informed Participation	NA
7.4. Impacts on Traditional or Customary Lands	NA
7.5. Relocation of IPs from Traditional or Customary Lands	NA
7.6. Cultural Resources	**NA**
8. Cultural Heritage	NA
8.1. Protection of Cultural Heritage in Project Design and Execution	NA
8.2. Project use of Cultural Heritage	**NA**
Environmental and Social Action Plan	**NA**
WBG Environmental, Health and Safety Guidelines	**S**
Host country Environmental, Health and Safety laws and regulations	**S**

Project E&S performance during monitoring

1. Assessment and Management of E&S Risks and Impacts

PS1-PROJECT DATA	Y	N	NA
1. Internationally certified EMS in place?		●	
2. Does this project need a full ESIA?			●
3. Has a cumulative impact been identified?			●
4. Has a socio-economic baseline study been identified?			●
5. Has an E&S audit of an existing asset been undertaken?		●	
6. External expert(s) used for ESIA?			●
7. ESIA satisfactory?			
8. ESAP prepared and satisfactory?			
9. Does the client have a documented community development plan in place?			●
10. Has the CDP been disclosed locally?			●
11. Have specific vulnerable groups been identified?			●
12. Does the client report publicly on overall E&S performance (e.g. sustainability report)?		●	
13. Have ecological or low labor costs factors been identified in the supply chain?		●	
14. Has the client established a FPIC?			●
15. Has IFC established BCS?			●
16. Has the client engaged an external expert to verify its monitoring information?		●	
17. Has the client established a community grievance mechanism?		●	
18. Has the client disclosed the E&S project information locally?	●		

S

2. Labor and Working Conditions

PS2-PROJECT DATA	Y	N	NA
1. Is there evidence of a functioning grievance mechanism for workers?	●		
2. Has the project had a collective bargaining agreement with one or more unions?		●	
3. Total number of direct employees:			
4. Number of incident or fatality of direct contract employees?			
5. Has a labor audit been undertaken?		●	
6. Has a supply chain screening been undertaken?			●
7. Has the project received SA 8000 certification or equivalent?			●
8. Has the project received OHSAS or similar certification?		●	
9. Child and forced labor, child labor in supply chain		●	
10. Has there been any retrenchment			
11.			

S

3. Resource Efficiency and Pollution Prevention

PS3-PROJECT DATA	Y	N	NA
1. Are there any air emissions?		●	
2. Is there any effluent?			●
3. Are there recycling and re-use of materials			●
4. Adequate disposal of waste?			●
5. Is the project sited on contaminated land?			●
6. Does the project involve hazardous materials			●
7. Emergency responsibilities stated	●		
8. Rescue Plan	●		
9. Firefighting water and pumps, extinguishers, hydrants	●		

PU

Project E&S performance during monitoring

4. Community Health, Safety and Security

PS4-PROJECT DATA	Y	N	NA
1. Number of incidents/fatality involving non-employees (community)?			
2. Do mandatory Emergency Preparedness and Response plans require community participation and readiness?		●	
3. Use of external experts on infrastructure and equipment safety?	●		
4. Does the client formally contract (B) private security forces?		●	
5. Security personnel management plan in place?	●		
6. Has a health impact assessment been conducted?		●	

PU

5. Land Acquisition and Involuntary Resettlement

PS5-PROJECT DATA	Y	N	NA
1. Land acquisition by (A) Government, (B) Client or (C) Both?			●
2. RAP/Audit/Framework prepared?			
3. Has the RAP/audit/framework been disclosed locally?			
4. Number of physically displaced household?			
5. Number of economically displaced household?			
6. How many displaced squatters have received security of tenure?			
7. Resettlement undertaken by (A) Government (B) Client			
8. or (C) Both?			
9. Has the client supplemented (cash or other benefit) to a government controlled land acquisition or resettlement?			

NA

6. Biodiversity Conservation and Sustainable Management

PS6-PROJECT DATA	Y	N	NA
1. Presence of critical habitat?			●
2. Independent certification for sustainable resource management?			
3. Introduction of alien species?			

NA

7. Indigenous People

PS7-PROJECT DATA	Y	N	NA
1. Are Indigenous Peoples affected?			●
2. Has an IPDP been prepared?			
3. IPs relocated?			
4. IPs' land used?			

NA

8. Cultural Heritage

PS8-PROJECT DATA	Y	N	NA
1. Has Cultural Heritage been identified (either through ESIA or the Chance Finds Procedures)			●
2. Has/will Cultural Heritage been/be removed?			
3. Is the Project commercially viable because of some aspect of Cultural Heritage			
4. Has the investee entered good faith negotiation for either Cultural Heritage and/or commercial use of Cultural Heritage?			
5. Has a plan for sharing benefits been prepared?			

NA

Environmental and Social Action Plan (ESAP) **S**

Project E&S performance during monitoring	
WBG Environmental, Health and Safety Guidelines Applicable EHS Guidelines: • Environmental, Health, and Safety General Guidelines • XXX • XXX	
Host country EHS laws and regulations • XX • XX Permits and licenses are current?	**S**

Performance in meeting EHS guidelines			
APPLICABLE GUIDELINES	**RATING**	**PROJECT'S PERFORMANCE/COMMENTS**	
General EHS Guidelines	**S**		**Rating**
		1. Environment	**S**
		1.1 Air Emissions and Ambient Air Quality	S
		1.2 Energy Conservation	S
		1.3 Wastewater and Ambient Water Quality	S
		1.4 Water Conservation	S
		1.5 Hazardous Materials Management	S
		1.6 Waste Management	S
		1.7 Noise	NA
		1.8 Contaminated Land	NN
		2. Occupational Health and Safety	**S**
		2.1 General Facility Design and Operation	S
		2.2 Communication and Training	S
		2.3 Physical Hazards	S
		2.4 Chemical Hazards	S
		2.5 Biological Hazards	NA
		2.6 Radiological Hazards	NA
		2.7 Personal Protective Equipment (PPE)	NA
		2.8 Special Hazard Environments	NA
		2.9 Monitoring	S
		3. Community Health and Safety	**S**
		3.1 Water Quality and Availability	NI
		3.2 Structural Safety of Project Infrastructure	S
		3.3 Life and Fire Safety (L&FS)	S
		3.4 Traffic Safety	NA
		3.5 Transport of Hazardous Materials	NA
		3.6 Disease Prevention	S
		3.7 Emergency Preparedness and Response	S
		4. Construction and Decommissioning	**S**
		4.1 Environment	S
		4.2 Occupational Health and Safety	S
		4.3 Community Health and Safety	S

3. DOCUMENTS REVIEWED

ESIA
ESAP
HR Policy
OHS Data
E&S operating licenses/permits

ANNEX 7: FORMAT OF ENVIRONMENTAL AND SOCIAL REVIEW SUMMARY (ESRS)

Environmental and Social Review Summary
Project Number: XX

Country:
Project:
Environmental Category: A/B
Date:

A. Project Description

B. Environmental and Social Categorization

C. Applicable Standards

While all Performance Standards are applicable to this investment, based on current information the investment will have impacts that must be managed in a manner consistent with the following Performance Standards:

- PS1: Assessment and Management of Environmental
- and Social Risks and Impacts
- PS2: Labor and Working Conditions
- PS3: Resource Efficiency and Pollution Prevention
- PS4: Community Health, Safety & Security
- PS5 Land Acquisition and Involuntary Resettlement
- PS6: Biodiversity Conservation and Sustainable
- Management of Living Natural Resources
- PS7: Indigenous Peoples
- PS8: Cultural Heritage

In addition, the WBG General EHS Guidelines and Industrial Sector Guidelines X, Y, are applicable to this project.

D. Key Documents and Scope of Global SnCF E&S Review

An environmental and social due diligence site visit was conducted by XXXX environmental/social specialist in (date). The site visit included visits to the project facilities and associated facilities and project affected persons. Meetings were conducted with representatives of XX and affected communities.

In addition to the due diligence site visit, the following documents were reviewed by XXXX:

- ESIA
- Feasibility Study Report

These documents adequately assess the environmental risks and impacts of XX Project and provide a sound basis for the proper mitigation of the environmental risks and impacts posed by this Project.

E. Key Issues and Mitigation

PS1: Assessment and Management of Environmental and Social Risks and Impacts

- *Social and Environmental Assessment*:
- *Management Program*:
- *Monitoring and Reporting*:
- *Organizational Capacity*:

PS2: Labor and Working Conditions

- *HR Policy and Procedures*:
- *Occupational health and safety*:
- *Worker training:*

PS3: Resource Efficiency and Pollution Prevention

- *Construction Phase:*
- *During operation*:

PS4: Community Health, Safety & Security

- *Construction and Operation:*
- *Security Arrangements:*

PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

- Environmental Permitting Process and Community Engagement:

ANNEX 8: EXAMPLE ENVIRONMENTAL & SOCIAL ACTION PLAN (ESAP)

See relevant notes for preparing an ESAP in Annex 4, page 40

Reference standard / law / regulation	Actions	Priority (Low, Medium, High)	Responsibility	Deadline	Completion indicator	Estimated cost

ANNUAL MONITORING REPORT

COMPLETION DATE: [INSERT DATE]

INTRODUCTION

Global SnCF E&S Policy and ESMS

In order to ensure the effective E&S appraisal, management and monitoring of proposed investments, Global SnCF developed an E&S Policy and ESMS in September 2018. These documents and associated procedures have been updated recently and signed off by the Global SnCF Board in XXX.

Contact Information:

Completed by :			
Position in Organisation:	ESM	Tel:	XX
Email:		Fax:	

Reporting Period:

From:	To:
October 1, 20xx	**September 30, 20xx**

1. OPERATIONS AND PORTFOLIO INFORMATION

Update of Current Operations

[Insert update text]

Portfolio Information

Project Portfolio:

Project name	Type (Biomass SolarPV Wind SHPP)	Sponsor	Equity (USDm)	Equity Partners	Debt (USDm)	Stage (Pipeline DD Financial close Construction Operation)

Project Details:

Project name	Type (Biomass SolarPV Wind SHPP)	Category (A, B, C)	Stage	E&S Issues - Status	Date of Last Site Visit

Repeat table as necessary for each project

Exposure to Exclusion List:

Activities on Global SnCF Exclusion List	
Percentage of investments out of total outstanding exposure involved in excluded activities.	0% of overall Portfolio
If the percentage is not zero, please explain these exposures and any steps having been taken to reduce such exposure.	N/A

2. ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

Policy and Process

		Yes/ No	Comment
2.1	ESMS development and implementation?		
2.2	ESMS or policy and procedures updates during the reporting period?		
2.3	Transactions rejected on environmental, health, safety or social grounds?		
2.4	Difficulties and/or constraints related to the implementation of the social and environmental procedures?		
2.5	Compliance with the Host Country laws and regulations?		
2.6	Material significant social and environmental issues associated with our invested projects during the reporting period?		

Supervision/ Monitoring

		Yes/ No	Comment
2.7	EHS reporting from projects during the reporting period?		
2.8	Environmental and social performance monitoring of projects during the reporting period?		
2.9	Accidents/Lost Time Incidents, Litigation/Complaints/Regulatory Notices and/or Fines? - Incidents of non-compliance with the E&S requirements - Covenants/conditionalities imposed by as a result of any non-compliance		
2.10	Joint monitoring with any IFI and use of their environmental and social guidelines?		

Capacity

		Yes/ No	Comment

2.11	E&S Coordinator who has the overall responsibility for the implementation of ESMS.		
2.12	Current staffing of other core ESMS persons in the organization involved with ESMS implementation,		
2.13	Training provided to the E&S Coordinator and/or team on ESMS implementation during the reporting period.		

Reporting

		Yes/ No	Comment
2.14	Internal report on project environmental and social issues submitted to Senior management during the reporting period?		
2.15	GHG reporting		
2.16	Development Impact Indicators		

3. HUMAN RESOURCES AND LABOR PRACTICE

Labour statistics:

		Men	Women	Total or Average over reporting year
Number of Employees	Management			
	Non-management			
	Contractors/sub-contractors			
	Handicapped			
	Total			
	Board Composition			
Age Breakdown	18 – 25			
	26 – 35			
	36 – 45			
	46 - 55			
	> 56			

HR Policy and Terms of Employment

		Yes/No	Comment

3.1	Human resources policy?		
3.2	Changes to the terms of employment during the year?		

Employee's Organization

		Yes/No	Comment
3.3	Employees' organizations engagement during the reporting period?		
3.4	Any dismissals due to membership in an employee organization or allegations to this effect?		
3.5	Employee representation within the organization, (e.g. staff council, consultative bodies)		
3.6	Collective bargaining agreement, or independent agreements and how are these negotiated?		
3.7	Any employee strikes or form of collective action during the reporting period		

Non-Discrimination and Equal Opportunity

		Yes/No	Comment
3.8	Internal complaints over issues of sexual or other harassment?		
3.9	Equal opportunity policy?		

Retrenchment

		Yes/No	Comment
3.10	Employees terminated/retrenched		
3.11	Anticipated retrenchment? How many employees will be laid off (by skill level and type of contract)?		
3.12	Describe why there is a need for retrenchment from a business point of view?		
3.13	What is the schedule for carrying out the retrenchment process? When will it be complete?		

Grievance Mechanism

		Yes/No	Comment

3.14	Employee grievance mechanism which enables employees to register and raise concerns?		
3.15	How many times has it been used in this reporting period?		

Labour Fines and Court Cases

		Yes/No	Comment
3.16	Has the labor authority issued fines to the company related to labor issues?		
3.17	Have any labor cases been filed against the company?		

4. LIFE AND FIRE SAFETY

Regulatory

		Yes/No	Comment
4.1	Fire Safety permits for all buildings including those on lease issued by appropriate authorities?		
4.2	Fire safety inspection carried out by the appropriate local authority? Key findings of the inspection and have any outstanding issues been addressed?		

Operational

		Yes/No	Comment
4.3	Life and fire safety responsible person?		
4.4	Life and fire safety facilities and equipment monitoring?		
4.5	Any fire incident in the reporting period?		

Training, Awareness and Competency

		Yes/No	Comment
4.6	Dates of fire drills? Number of staff participating?		
4.7	First aid and firefighting training was provided to staff during the reporting period.		

ANNEX 10: GLOBAL SNCF LIST OF EXTERNAL CONSULTANTS (TO BE COMPLETED)

ANNEX 11: GLOBAL SNCF GRIEVANCE MECHANISM AT FUND LEVEL

PCALP maintains a "Feedback" email address on the "Contact Us" page of its website. Emails received through this address are directed to the Firm's Chief Compliance Officer. Any grievances regarding ESG matters should be also be shared with the appropriate person(s) overseeing ESG matters. If requested, emails submitted to the email address will be kept confidential.

A grievance log is maintained by the Chief Compliance Officer, which includes:

1. date of grievance
2. name of aggrieved party and any affiliation/organization
3. contact details of aggrieved party
4. category of grievance (environmental, social, governance, other)
5. whether the grievance is directed at PCALP or an investee (if investee, its name should be listed)
6. summary of the issue
7. whether the grievance is an appeal to an earlier grievance management outcome
8. relevant parties to engage within PCALP and any applicable investee of PCALP
9. recommended investigation of issue
10. outcome of investigation and actions taken
11. date of closure and information provided to aggrieved party

The Chief Compliance Officer is responsible to:

a. Work to acknowledge the grievance in writing in a timely manner and let the aggrieved party know the status of PCALP' investigation into the matter. An estimated timeframe for investigation should be provided. Investigations into grievances can vary depending on the nature of the grievance, but best efforts should be made to ensure that grievances are handled promptly. Most investigations should not last more than 90 days.
b. Work with relevant parties at PCALP and investees to evaluate the grievance and determine if any action should be taken to remedy it.
c. Inform the aggrieved party of outcomes of the investigation and any action being taken or reasons for not taking action.
d. Log the outcome of the investigation in the Excel file, including a summary of actions taken or rationale for not taking action and the date of response to the aggrieved party.

The contents of the grievance log and management of grievances should respect confidentiality of the aggrieved party to the extent practical, and there should be no retaliation against aggrieved parties or whistleblowers.

In some cases, it may be appropriate for PCALP to further engage the aggrieved party during an investigation into the grievance. This could take place through inviting the aggrieved party to a meeting, conference call, or by engaging further in writing. All ongoing engagement with an aggrieved party should be noted in the grievance log.

ANNEX 12: GLOBAL SNCF GRIEVANCE MECHANISM AT PROJECT LEVEL

Project sponsors are responsible for ensuring that a grievance mechanism is in place for the project. Depending on the context (cultural, geographical, etc.), the most appropriate mechanism should be discussed and introduced as part of the initial stakeholder consultation meeting. The purpose of the grievance mechanism is to allow local stakeholders the ability to give continuous input and/or to lodge complaints against the project, and to allow for the resolution of grievances.

During the first physical meeting with local stakeholders / project affected persons, different complaint mechanisms should be explained and discussed to ensure that the stakeholders agree that the selected methods are the most appropriate. The details of this discussion should be recorded and included in the stakeholder meeting summary.

For each project, a "grievance / continuous input book" should be physically available in an appropriate location (eg. town hall; local church, mosque or other place of worship, etc). In addition to the book, at least one additional method should be chosen and should be appropriate for the context. Other methods include:

- Telephone access (useful in the case of widespread illiteracy)
- Internet access
- Nominated independent mediator
- other

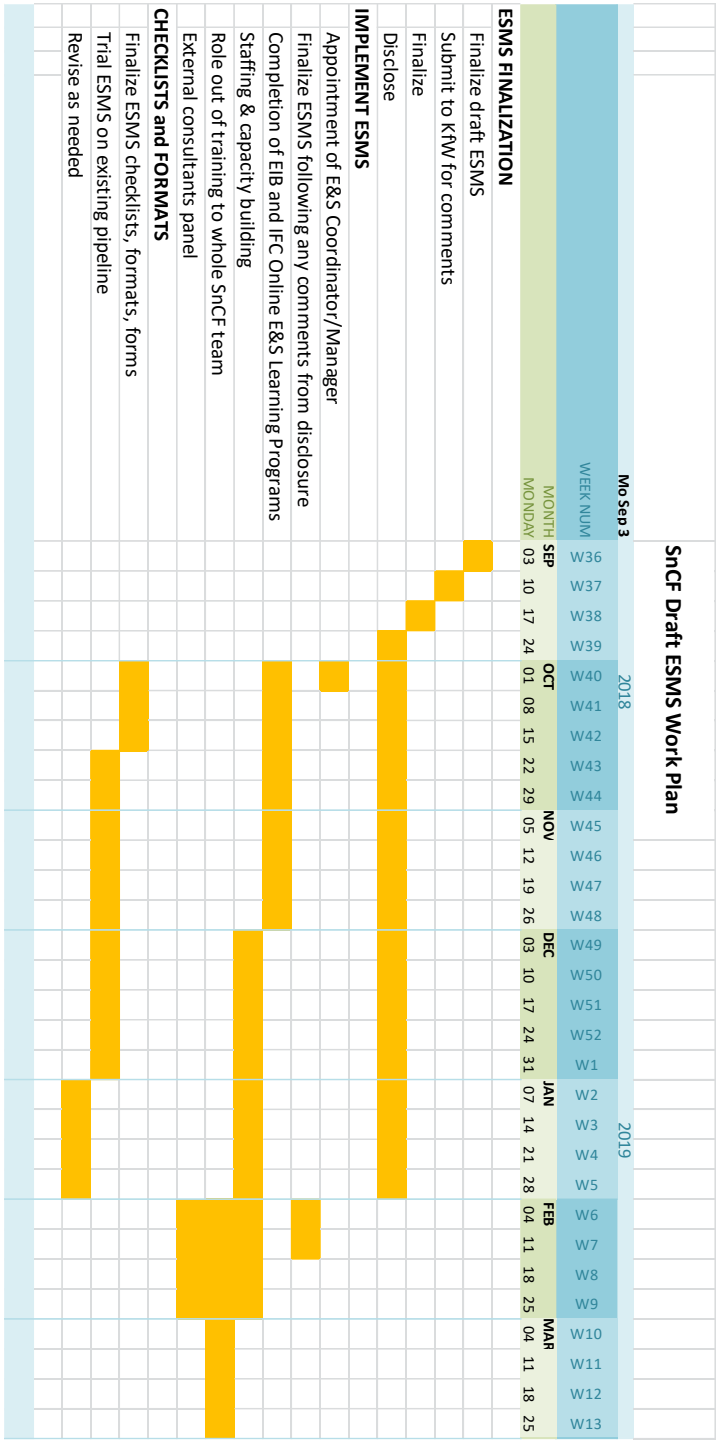
More details on project level grievance mechanism can be found in the Stakeholder Consultation and Engagement Framework can be found in Annex 16.

ANNEX 13: GLOBAL SNCF PROJECT INFORMATION SHEET (TO BE COMPLETED)

Because SNCF is a Fund and not a specific project, we will complete this information sheet for each project that the Fund invests in.

ANNEX 14: GLOBAL SNCF ESMS PERIODIC REVIEW TEMPLATE (TO BE COMPLETED)

ANNEX 15: GLOBAL SNCF ESMS IMPLEMENTATION PLAN (TO BE UPDATED BASED ON FINAL COMMENTS)



ANNEX 16: STAKEHOLDER ENGAGEMENT FRAMEWORK AND CONTINUOUS STAKEHOLDER ENGAGEMENT STRATEGY

The ESMS Stakeholder Consultation and Engagement Framework here proposed is based on the **Gold Standard Stakeholder Consultation and Engagement Requirements.**

Engagement is critical to understanding the views and interests of different stakeholders on issues related to the project, flagging gaps and opportunities, establishing a constructive relationship or project roles with relevant parties and enabling stakeholders to take ownership of the project; it is also a vital element for promoting transparency and accountability, effective participation and inclusion. In practical terms, stakeholder engagement can be understood as an overarching term that encompasses a range of activities and interactions with stakeholders throughout the project cycle; defining and implementing such activities and interactions reflects an essential aspect of good project management.

The ESMS requires projects to design a dedicated stakeholder engagement process in order to ensure that:

- stakeholders' concerns are captured and potential risks are adequately identified;
- groups and peoples whose lives might be affected by the project are properly consulted to verify and assess the significance of any impacts;
- affected groups and communities participate in the development of mitigation measures, in decision making regarding their operationalisation, and in monitoring their implementation.

Scope and Applicability

The aim of the stakeholder consultation is to engage affected stakeholders and to discuss potential environmental, social and economic impacts (both positive contributions and potential risks) that projects may have during design, planning and implementation and to establish an ongoing mechanism for feedback.

All Gold Standard projects shall "take gender issues into account". This requires local stakeholder consultation processes to reach a wide range of community representatives in ways that ensure equal and effective participation of both women and men, and that gender issues are fully factored into comprehensive social and environmental impact assessments. Project Developers are referred to the Gold Standard Gender Equality Requirements & Guidelines and Gender Policy.

Timing of Local Stakeholder Consultation

- The Stakeholder Consultation shall be conducted prior to the start date of the Project so that the stakeholders can truly influence the project design, planning and its implementation.
- If the Consultation is conducted after the start date, the stakeholders shall be provided with an opportunity to comment on the project and the Project Developer shall provide further explanation of how comments received during the consultation were taken into account.

Minimum Group of Stakeholders to be consulted

- The Project Developer shall identify and invite all relevant (local, affected and interested) stakeholders as mentioned below for consultations and comments.
    (a) Local people, communities and or representatives[12] who are directly or indirectly affected by the project
    (b) Stakeholders with land-tenure rights within or adjacent to the project must be contacted
    (c) Local policy makers and representatives of local authorities
    (d) National government officials or National focal bodies responsible for the project in the host country, for example, Designated National Authority[13] (DNA)
    (e) Local non-governmental organisations (NGOs), Women Groups working on topics relevant to the project or working with communities who are likely to be affected by the project
    (f) A Gold Standard representative at help@goldstandard.org
    (g) Relevant international Gold Standard NGO Supporters[14] with representation in your region and all Gold Standard NGO Supporters located in the host country of the project
- The Project Developer shall provide evidence that invitations were sent to the relevant stakeholders and that their comments were invited. If any of the relevant stakeholders were not invited, the project participants shall provide appropriate justification.

Means for Inviting Stakeholders

- The Project Developer shall invite local stakeholders to participate in the meeting and provide comments on the proposed project in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders.
- The Project Developer shall invite the stakeholders selecting an invitation method that is most appropriate to the context and for the region, taking into account local and national circumstances, including appropriate language and measures and using adequate and effective means.
- Projects shall ensure that the stakeholders are invited in a 'gender-sensitive' manner and efforts must be made to solicit input from women and marginalised groups.
- The Project Developer shall not deny anyone access to the consultation. It shall be open for anyone wishing to participate.

[12] Legitimate stakeholder representatives could be, but are not limited to: elected representatives of regional, local, traditional representatives, such as leaders (chairmen, directors) of local cooperatives, other community-based organisations, local businesses/business groups, local NGOs, and local women's groups, politicians and local government officials, school teachers, and religious leaders.

[13] List of DNAs is available at https://cdm.unfccc.int/DNA/bak/index.html

[14] List of Gold Standard NGO Supporters is available at https://www.goldstandard.org/about-us/ngo-supporters

- The invitation for the consultation meeting shall be given at least 30 days before the meeting takes place.

Information to be made available to Stakeholders

- Prior to the consultation, the Project Developer shall provide information in a manner including format, language(s) that allows local stakeholders to understand and engage with the project. The information to be made available to stakeholders shall include, inter alia:
    (a) A non–technical summary of the project including information on project design, technology, objectives, scale, duration and implementation plan (so far as known)
    (b) Summary of the economic, social and environmental impacts of the project as per Safeguarding Principles & Requirements
    (c) Contact details to get further technical detail and project information, should any stakeholder be interested
    (d) Other relevant information to help stakeholders understand the project
    (e) Means and method to provide feedback for those who are not able to join the consultation meeting

Consultation

- The Stakeholder Consultation shall comprise of a minimum two rounds of consultation including one mandatory physical meeting and one stakeholder feedback round lasting for at least two months.
- Where necessary, other means and approaches that are appropriate for local and national circumstances can be used to conduct stakeholder consultation meetings. For example, due to the nature of the project, instead of one big physical consultation meeting, several meetings at different locations may be conducted to ensure that relevant stakeholders can participate.
- The project shall encourage equal and effective participation by both men and women in the stakeholder consultation (this also includes the suitability of place and timing of the consultation(s)).
- For retroactive projects, project implementation is started without conducting the first round of stakeholder consultation following the Requirements. In such cases, the physical meeting shall be integrated with the stakeholder feedback round, if this has not taken place as part of previous stakeholder consultations. The physical meeting conducted during the stakeholder feedback round must follow all requirements listed in this document. Special attention must be paid to the fact that the projects must take into account stakeholder feedback and shall modify project design, where reasonable.

Continuous Input and Grievance Mechanism

- All projects shall setup a formal input, feedback and grievance mechanism with the purpose of providing stakeholders with an opportunity to submit any feedback or raise grievances during the entire project life.
- The project shall discuss the potential options with stakeholders and agree on an appropriate method.

- At a minimum, Continuous Input and Grievance Expression Process Book shall be made available at an agreed location.

Consideration of Comments Received

- The Project Developer shall apply a gender lens while assessing the relevance and appropriateness of the stakeholders' comments.
- The project shall consider the comments provided by the Stakeholders and report on how the comments have been accounted for. It may also involve changes in the project design, where appropriate. The Project Developer shall provide justifications when any comments have not been incorporated or addressed.
- The Stakeholders shall be provided with the feedback on how their comments have been taken into account as part of the stakeholder feedback round.

Ongoing Reporting

- The Project Developer shall provide information in the annual and monitoring report, as applicable, for the following:
    (a) Concerns that have been identified and raised by stakeholders during the stakeholder consultations and the mitigation measures put in place to address those.
    (b) Any feedback given by stakeholders as part of the project's grievance mechanism.

Stakeholder Consultation Documentation

- The Project Developer shall make use stakeholder consultation report template to document all the steps taken to meet the Stakeholder Consultation and Engagement Requirements and provide evidence to demonstrate the compliance.
- The Stakeholder consultation report shall be submitted to Gold Standard within three months of the event (though this date may be after the Project Start Date).

ANNEX 17: TERMS OF REFERENCE FOR LAND ACQUISITION PLAN, RESETTLEMENT ACTION PLAN, LIVELIHOOD RESTORATION PLAN AND INDIGENOUS PEOPLES PLAN

The ESMS safeguards here proposed are based on the Gold Standard for the Global Goals Safeguarding Principles & Requirements, which are derived from a number of international conventions, including:

- UNDP's Social and Environmental Standards (SES)
- UN Environment's Environmental, Social and Economic Sustainability Framework
- The World Bank's International Finance Corporation Performance Standard

Interventions are never one-dimensional. The interconnected nature of climate and development projects calls for appropriate safeguarding mechanisms. The safeguards introduced in the Environmental and Social Management System Policy Framework help projects to identify, prevent and mitigate negative, unintended consequences that may arise from a given intervention. Credible safeguards are important in both ensuring development outcomes are not undermined as well as gaining public support for climate actions.

Here below an outline of the overarching safeguarding principles that a project is required to meet throughout the entire project cycle:

Safeguarding Principles	
Social	Principle 1 – Human Rights
	Principle 2 – Gender Equality and Women's Rights
	Principle 3 – Community Health, Safety and Working Conditions
	Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement
	Principle 5 – Corruption
Economic	Principle 6 – Economic Impacts
Environmental & Ecological	Principle 7 – Climate and Energy
	Principle 8 - Water
	Principle 9 - Environment, Ecology and Land Use

The requirements outlined in this document shall guide projects

(a) to identify the potential risks and adverse outcomes of their activities

(b) to adopt a mitigation strategy to avoid or where avoidance is not possible, minimise identified risks, with the intention to achieve the stated requirements.

Safeguarding Principles Assessment Procedure

The Safeguarding Principles Assessment procedure set out in this document includes the key following elements:

(a) **Principles**: The overarching principles and rationale for the inclusion of the given assessment.

(b) **Assessment Questions**: The safeguarding assessment questions to identify potential risks and adverse outcomes of the project and determine how the Requirements shall be met for each Principle.

(c) **Requirements**: The requirements define what a Project shall achieve through design, management or risk mitigation.

All Safeguarding Principles and corresponding Requirements apply to all Projects seeking Gold Standard certification.

All Projects shall undertake an upfront assessment against the Safeguarding Principles and implement their Project in accordance with the stated Requirements. The assessment shall apply to the Project Scenario, although assessment questions and Requirements involve a comparison to the Baseline Scenario(s) and/or the implementation or decommissioning phases of a Project.

A non-exhaustive list of assessment questions is provided for each Principle. The Project shall provide responses to these questions, including justifications for responses following the below guidance:

(a) 'Yes' – Meaning that the risk or expected issue identified in the assessment question is relevant to the Project and context. The Requirements apply and adherence shall be demonstrated. All information must be included in the Monitoring & Reporting Plan and future Monitoring Reports.

(b) 'Potentially' – Meaning that the risk or expected issue may be relevant at some point in the Project's cycle but is not necessarily relevant now and/or may never arise. The Requirements apply but the Project Developer may justify why these Requirements do not need to be demonstrated as being met.

(c) 'No' – Meaning that the risk or expected issue is not relevant to the Project. Justification shall be provided to support this conclusion, with evidence provided where required.

Note that certain Requirements are mandatory for all Projects and these requirements are not accompanied by an assessment question. The Safeguarding Principles Assessment shall include a description with justifications on how a project met these Requirements.

The Requirements shall be used to guide any re-design/mitigation proposals where a risk is identified, i.e., the response to a given outcome shall be designed with the intention of achieving the stated Requirements.

The scope of each Requirement (for example, its application during implementation or to upstream or downstream issues) is defined within the individual section.

In certain circumstances an exception to a specific Safeguarding Principle or Requirement may be sought. Gold Standard encourages Projects to understand and demonstrate the trade-offs associated with them. In the presence of unavoidable negative impacts that exceed the Requirements and may not be remediated by consultation or mitigation, the Project Developer shall submit a Deviation Request to Gold Standard for review. All such requests shall be reviewed by a panel made up of the Gold Standard Secretariat and at least two relevant third-party Expert Stakeholder(s) and a Gold Standard Technical Advisory Committee (TAC) Member. The panel shall make recommendations to the Project Developer as to any changes to the project to minimise the adverse outcomes. The panel will also recommend to Gold Standard as to whether the exception should be accepted or not. The final

decision shall be taken by Gold Standard. Examples could include where a Project introduces a major innovation, makes a major positive contribution to sustainable development or where a legitimate body of affected stakeholders is empowered to make decisions on such matters.

Certain Safeguarding Principles require opinion and recommendations of Expert Stakeholder(s). These are identified throughout the Gold Standard Safeguarding Principles Requirements and/or in the Gold Standard Activity Requirements. Where applicable, the Project Developer shall demonstrate that the Expert Stakeholders have conducted a thorough review (and, if needed, an onsite visit) and that their recommendations have been incorporated into the project design.

Any failure, at any time in respect to the completion of the Safeguarding Principles Assessment, including conformity with Requirements and Monitoring & Reporting Requirements shall lead to the invocation of the Non-Conformity section of the Gold Standard Principles and Requirements.

The Project shall provide the following information with regards to the Safeguarding Assessment at different project stages:

Safeguarding Assessment Information

Project Stage	Information
Stakeholder Consultation	Information on draft Safeguarding Principles Assessment including a summary of environmental, social and economic impacts of projects shall be made available to Stakeholders to seek feedback during Consultations.
Preliminary Review	A draft Safeguarding Principles Assessment
Design Review	A completed Safeguarding Principles Assessment fully assessed by the Gold Standard Validation/Verification Body (GS-VVB) Performance
Performance Review	The monitoring report shall include: (a) An update on the implementation including information on relative success and failures, or improvements to proposed mitigation measures (b) Monitoring and reporting on any key indicators identified, including against pre-set tolerances (c) Information on any assessment questions answered 'Potentially' or where Requirements call for regular re-assessment

GS Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement

The Principle on Cultural Heritage, Indigenous Peoples, Displacement and Resettlement:

- Promotes and supports the protection and preservation of cultural heritage and the equitable sharing of benefits from the use of cultural heritage.
- Advocates the avoidance of alteration, damage or removal of artifacts and objects of cultural value.

- Recognises and respects the prohibition of forced evictions and the use of violence generally.
- Recognises and fosters full respect for indigenous peoples' human rights as recognised under Applicable Law, including but not limited to their rights to self-determination, their lands, resources and territories, traditional livelihoods and cultures.
- Ensures that Projects that may impact indigenous peoples and local farmers are designed in a spirit of partnership with them, with their full and effective participation, with the objective of securing their free, prior, and informed consent (FPIC)[15] where their rights, lands, resources, territories, traditional livelihoods may be affected.

Assessment Questions

Principle	Sub-Principle	Assessment Questions
Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?
	4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?
	4.3 Land Tenure and Other Rights	Does the Project require any change to land tenure arrangements and/or other rights? For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.
	4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?

[15] Free, Prior and Informed Consent (FPIC) is a specific right that pertains to indigenous peoples and is recognised in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The normative framework of FPIC consists on a series of legal international instruments including the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), the International Labour Organization Convention 169 (ILO 169), and the Convention on Biological Diversity (CBD), among many others, as well as national laws. Please refer to the link for further details. http://www.fao.org/indigenous-peoples/our-pillars/fpic/en/

Principle 4.1 - Sites of Cultural and Historical Heritage Requirements

- The Project shall not involve or be complicit in the alteration, damage or removal of any sites, objects or structures of significant cultural heritage.
- Where a Project proposes to utilise Cultural Heritage, including the knowledge, innovations, or practices of local communities, affected communities shall be informed of:
    - Their rights under Applicable Law,
    - The scope and nature of the proposed commercial development; and
    - The potential consequences of such development.
- The Project shall provide for equitable sharing of benefits from commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions.
- The opinions and recommendations of an Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design.

Principle 4.2 - Forced Eviction and Displacement Requirements

- The Project shall not involve and shall not be complicit in the involuntary relocation of people.
- Projects shall avoid physical (i.e., relocation or loss of shelter) and economic displacement (i.e., loss of assets or access to assets that leads to loss of income sources or means of livelihood), and mitigate displacement impacts on displaced persons and host communities when displacement cannot be avoided. In such cases, the Project shall integrate into the Project documentation a Resettlement Action Plan or Livelihood Action Plan as appropriate. Please refer to UNDP Standard 5: Displacement and Resettlement[16] requirements for further details in this regard.
- The opinions and recommendations of an Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design.

Principle 4.3 - Land Tenure and other rights Requirements

- The Project Developer shall identify all such sites/matters potentially affected by the Project. For all such sites/matters identified the Project shall respect and safeguard:

[16] UNDP's Social and Environmental Standards; https://www.undp.org/content/undp/en/home/librarypage/operations1/undp-social-andenvironmental-standards.html

- Legal rights, or
- Customary rights, or
- Special cultural, ecological, economic, religious or spiritual significance of people shall be demonstrably promoted/protected.

- Changes in legal arrangements must be in line with relevant law and regulation and must be carried out in strict adherence with such laws. All legal disputes must be resolved prior to the Project being carried out in such areas. All such changes must be demonstrated as having been agreed with free, prior and informed consent.
- The Project Developer must hold uncontested land title for the entire Project Boundary to complete Project Design Certification.
- The opinions and recommendations of an Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design.

Principle 4.4 - Indigenous people[17] Requirements

- The Project Developer shall identify all communities of Indigenous Peoples within the Project area of influence who may be affected directly or indirectly by the Project.
- The Project Developer shall recognise and respect the indigenous people's collective rights to own, use, and develop and control the lands, resources and territories that they have traditionally owned, occupied or otherwise used or acquired, including lands and territories for which they do not yet possess title.
- The Project Developer shall respect, protect, conserve and shall not take the cultural, intellectual, religious and spiritual property of indigenous peoples without their free, prior and informed consent (FPIC).
- The Project Developer shall ensure that the indigenous people are provided with the equitable sharing of benefits to be derived from utilisation and/or commercial development of natural resources on lands and territories or use of their traditional knowledge and practices by the Project. This shall be done in a manner that is culturally appropriate and inclusive and that does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions and housing.
- The opinions and recommendations of an Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design.

[17] There is no one universally accepted definition of indigenous peoples. For purposes of this Standard "Indigenous peoples" refers to distinct collectives, regardless of the local, national and regional terms applied to them (for example, "tribal people", "first peoples", "scheduled tribes", "pastoralist", "hill people."), who satisfy any of the more commonly accepted definitions of indigenous peoples. Including but not limited to those provided for in the Convention concerning Indigenous and Tribal Peoples in Independent Countries (ILO Convention No. 169), the Study on the Problem of Discrimination against Indigenous Populations (the "Martinez Cobo Study"), and the Working Paper on the Concept of "Indigenous People" prepared by the Working Group on Indigenous Populations.

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The requirements outlined in this document shall guide projects

(c) to identify the potential risks and adverse outcomes of their activities

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(d) 'Yes' – Meaning that the risk or expected issue identified in the assessment question is relevant to the Project and context. The Requirements apply and adherence shall be demonstrated. All information must be included in the Monitoring & Reporting Plan and future Monitoring Reports.

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Environmental & Ecological Safeguarding Principles

Principle 7 – Climate and Energy

The Principle on Climate and Energy:

- Promotes Climate Security (mitigation and adaptation) and Sustainable Development.

Assessment Questions

Principle	Sub-Principle	Assessment Questions
Principle 7 – Climate and Energy	7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?
	7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?

Principle 7.1 – Emissions Requirements

- Projects shall not increase greenhouse gas emissions over the Baseline Scenario unless this is specifically allowed within Activity Requirements or Gold Standard Approved Impact Methodologies.

Principle 7.2 - Energy supply Requirements

- The Project shall not affect the availability and reliability of energy supply to other users.

Principle 8 – Water

The Principle on Water:

- Promotes sustainable management, protection, conservation, maintenance and rehabilitation of natural habitats and their associated biodiversity and ecosystem functions.

Assessment Questions

Principle	Sub-Principle	Assessment Questions
Principle 8 – Water	8.1 Impact on Natural Water Patterns/Flows	Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?
	8.2 Erosion and/or Water Body Instability	Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to next question? Is the Project's area of influence susceptible to excessive erosion and/or water body instability?

Principle 8.1 - Impact on Natural Water Patterns/Flows Requirements

- The Project shall ensure that water resources are conserved. For surface waters this means:

  (a) Maintaining credible environmental flows, demonstrated by providing a verifiable calculation that shows conservation is maintained at a level as advised by the independent Expert Stakeholder, and

  (b) Ensuring that any discharged wastewater is of a high enough standard to allow beneficial reuse. For ground water this means limiting abstractions to levels less than, or equal to, rates of recharge. Managed aquifer recharge may be used to conserve groundwater resources. The project can use historical records, ongoing monitoring and reporting through data logging of physical measurements, online sources and/or government data to assess the project risks/impacts.

Recommended methods: Quantitative documentation of all sources and volumes of water abstractions. Use of weirs and gauges, flow meters, pump energy consumption, transpiration rates, government data, remote sensing.

- At each Performance Certification the Project shall assess whether it is in an area of physical water stress or scarcity. The project can conduct an analysis of the water scarcity within the Project's physical area of influence (e.g., basin, watershed) and shall monitor the impact frequently. The project can use Aqueduct, GWSP Digital water Atlas, Water Risk Filter, WBCSD Global Water Tool, Water Stress Index Maplecroft, Water Scarcity Index Pfister or other recognised tools for water stress and scarcity assessment with in the Project's physical area of influence.
- The Project shall provide verifiable evidence of water stress experienced in the basin(s) in which the Project is active, and demonstrate that consumption of water by the Project (over Baseline) is negligible or will bring positive impacts or, at a minimum, not increase the overall annual basin stress.
- The risk(s) of the Project negatively impacting the catchment shall be assessed and addressed to ensure its ongoing, long-term viability and impact on surrounding social-economic and environmental assets. The project can use mapping tools, or other appropriate nationally recognised tools in this regard. Recommended methods include online tools, engineering or physical assessment, historical flow records, land use records, and verbal or written surveys with local agencies and residents. Examination of longitudinal and lateral conductivity to check connectivity of flows, including vertical connectivity (i.e., sufficient flows or dead zones).
- Where the Project is involved in abstraction from water resources required to support biodiversity and other ecosystem services, an eflow assessment consistent with good practice, including a modern method outlined in one of the key references listed below must be undertaken. Alternatively, where local, national or regional regulation exists or where alternative approaches may be more appropriate then these may be put forward to Gold Standard for approval.
- Where environmental flow assessments are impractical, the Project is required to demonstrate that the flow rate and variability is maintained from the abstracted water resource. A verifiable calculation shall be provided for each water source demonstrating total flow rates do not fall below levels that are contextually appropriate, as advised by an independent Expert Stakeholder.
- The opinions and recommendations of Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design and Monitoring Plan.

Principle 8.2 - Erosion and/or Water Body Instability Requirements

- The risk of the Project negatively impacting the catchment and any risks impacting the Project's success shall be assessed and addressed. The project shall ensure its ongoing, long-term viability and impact on surrounding social-economic and environmental assets. The project shall assess the sensitivity of the physical area of influence due to low percentage of impervious cover in a project (e.g., basin, catchment), susceptibility to erosion and water body instability, and lack of terrestrial habitat connectivity. The project can use mapping tools, or other appropriate nationally recognised tools, academic or published studies on the relevant area. The recommended methods include online tools, visual inspection, engineering or physical assessment, historical land use records, aerial photographs, and verbal or written surveys with local agencies and residents on the characterisation of geomorphology of water bodies.
- The Project shall demonstrate that measures to ensure soil protection and minimised erosion are in place prior to the commencement of the Project.
- The Project shall demonstrate that measures will be undertaken to ensure that surface and ground waters are protected from erosion and that these measures are in place prior to the commencement of the Project.
- Measures shall be incorporated to reduce soil erosion on slopes (e.g., hedge and tree rows, natural terracing, infiltration strips, permanent ground cover). For these measures, the concept of the effective slope length shall be taken into account.
- Impact shall be reassessed at a frequency appropriate to the context of the ecosystem affected. The monitoring approach and frequency shall be justified by reference to natural patterns and variations.
- Where the Project takes place in a water scarce or water stressed area, the opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being considered and incorporated into the project design.

Principle 9 - Environment, ecology and land use

The Principle on Environment, ecology and land use:

(a) Ensures a precautionary approach to natural resource conservation and avoids negative environmental impacts.

Assessment Questions

Principle	Sub-Principle	Assessment Questions
Principle 9 - Environment, ecology and land use	9.1 Landscape Modification and Soil	Does the Project involve the use of land and soil for production of crops or other products?
	9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?
	9.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?
	9.4 Release of pollutants	Could the project potentially result in the release of pollutants to the environment?
	9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and nonhazardous chemicals and/or materials?
	9.6 Pesticides & Fertilisers	Will the Project involve the application of pesticides and/or fertilisers?
	9.7 Harvesting of Forests	Will the Project involve the harvesting of forests?
	9.8 Food	Does the project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?
	9.9 Animal husbandry	Will the Project involve animal husbandry?
	9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified? For example, Ramsar wetlands, World Heritage Areas, 'wilderness' areas, free-flowing rivers, unique or species-rich areas, primary forest, threatened or endangered species, migratory species as defined by treaties and national authorities or areas of natural cultural significance.

Principle 9.1 - Landscape Modification and Soil Requirements

- The Project shall identify the functions and services provided by the landscape and demonstrate no net degradation in existing landscape function and services.
- To ensure healthy soils the following aspects shall be identified, and appropriate measures shall be put in place to protect them:

  (a) Soil types, AND

  (b) Biota, AND

  (c) Erosion
- Measures shall be incorporated to minimise soil degradation (e.g., through crop rotation, composting, no use of heavy machinery, use of N-fixing plants, reduced tillage, no use of ecologically harmful substances).
- Projects that involve the production, harvesting, and/or management of living natural resources by small-scale landholders and/or local communities shall adopt the appropriate and culturally sensitive sustainable resource management practices.

Principle 9.2 - Vulnerability to Natural Disaster Requirements

- The Project shall avoid or minimise the exacerbation of impacts caused by natural or man-made hazards, such as landslides or floods that could result from land use changes due to Projects. The Project Developer shall include mitigation measures (if possible), the emergency preparedness plan and response strategies. The Project Developer shall disclose appropriate information about emergency preparedness and response Projects, resources, and responsibilities to affected communities.

Principle 9.3 - Genetic Resources Requirements

- Projects involving the use of GMOs[18] are not eligible for Gold Standard Project Design Certification.
- An assessment for the risk of GMO contamination from outside the Project area and reasonable and appropriate counter measures should be taken.

Principle 9.4 - Release of pollutants Requirements

[18] An organism in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination. See 'FSC Interpretation on GMO – FSC-POL-30-602': https://ic.fsc.org/download.fsc-pol-30-602-2000-fsc-interpretationon-gmos-genetically-modified-organisms.a-499.pdf

- The Project shall avoid the release of pollutants[19]. This applies to the release of pollutants to air, water, and land due to routine, non-routine and accidental circumstances[20].
- The Project Developer shall ensure that pollution prevention and control technologies and practices consistent with national regulation or international good practice are applied during the Project life cycle.
- All potential pollution sources that may result from the Project that cause the degradation of the quality of soil, air, surface and groundwater within the Project's area of influence shall be identified. Appropriate mitigation measures and monitoring shall be implemented to ensure the protection of resources. The project can use historical records, ongoing monitoring and reporting through data logging of physical measurements, online sources, government data. The recommended methods include quantitative documentation of all sources and volumes of water abstractions, use of weirs and gauges, flow meters, pump energy consumption, transpiration rates, government data.

Principle 9.5 - Hazardous and Non-hazardous Waste Requirements

- Projects shall avoid or, when avoidance is not feasible, minimise and control release of hazardous materials resulting from their production, transportation, handling, storage and use in the Project. Where avoidance is not possible, the health risks, including potential differentiated effects on men, women and children, of the potential use of hazardous materials shall be addressed appropriately.
- Projects shall consider the use of less hazardous substitutes for such chemicals and materials and will avoid the manufacture, trade, and use of chemicals and hazardous materials subject to international bans or phase-outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer[21].
- All sources of waste and waste products shall be identified and classified. Waste products include amongst others:

  (a) Chemical wastes, AND

  (b) Containers, AND

  (c) Fuels and oils, AND

  (d) Human waste, AND

  (e) Rubbish (including metals, plastics, organic and paper products), AND

  (f) Abandoned buildings, machinery or equipment.

[19] For the purposes of the Gold Standard, the term "pollution" refers to both hazardous and non-hazardous pollutants in the solid, liquid, or gaseous phases, and includes other components such as pests, pathogens, thermal discharge to water, GHG emissions, nuisance odours, noise, vibration, radiation, electromagnetic energy, and the creation of potential visual impacts including light.

[20] Including those covered under the Convention on Long-range Transboundary Air Pollution, available at http://www.unece.org/env/lrtap/lrtap_h1.html

[21] As defined by international conventions or local legislation. Where local legislation and international conventions may diverge, the higher standard will apply.

- Where waste generation may not be avoided, the Project shall reduce the generation of waste, and recover and reuse waste in a manner that is safe for human health and the environment.
- Where waste may not be recovered or reused, it shall be treated, destroyed, or disposed of in an environmentally sound manner that includes the appropriate control of emissions and residues resulting from the handling and processing of the waste material.
- If the generated waste is considered hazardous[22], reasonable alternatives for its environmentally sound disposal will be adopted while adhering to the limitations applicable to its transboundary movement[23].
- The Project shall not make use of chemicals or materials subject to international bans or phase-outs. For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol.

Principle 9.6 - Pesticides & Fertilisers Requirements

- Projects involving pest management, the integrated pest management (IPM) and /or integrated vector management (IVM) approaches shall be adopted and aim to reduce reliance on chemical pesticides.
- The health and environmental risks associated with pest management should be minimised with support, as needed, to institutional capacity development, to help regulate and monitor the distribution and use of pesticides and enhance the application of integrated pest management.
- When Projects include pest management or the use of pesticides, pesticides that are low in human toxicity, known to be effective against the target species and have minimal effects on non-target species and the environment shall be selected.
- There shall be a 'Chemical Pesticides Policy' that is documented, implemented and regularly updated. This policy shall include at a minimum:
    (a) Provisions for safe transport, storage, handling and application, AND
    (b) Provisions for emergency situations.
- The Project Developer shall not purchase, store, manufacture, trade or use products that fall in Classes IA (extremely hazardous) and IB (highly hazardous) of the World Health Organization Recommended Classification of Pesticides by Hazard.
- Fertilisers shall be avoided, or their use shall be minimised and justified. If the aerial application of fertiliser is used, then measures shall be put in place to prevent drift.

[22] Shall be Consistent with the objectives of the Stockholm Convention on Persistent Organic Pollutants, available at http://chm.pops.int/default.aspx, and the Montreal Protocol on Substances that Deplete the Ozone Layer, available at http://ozone.unep.org/en/treaties-and-decisions/montreal-protocol-substances-depleteozone-layer. Similar considerations will apply to certain World Health Organization (WHO) classes of pesticides.

[23] Transboundary movement of hazardous materials should be consistent with national, regional and international law, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, available at http://www.basel.int, and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, available at http://www.imo.org. For further guidance, the Strategic Approach to International Chemicals Management (SAICM) is a policy framework to foster the sound management of chemicals, available at http://www.saicm.org/.

Principle 9.7 - Harvesting of Forests Requirements

- The Project shall:

(a) Enhance the sustainable management of forests, including the application of independent, credible certification for commercial, industrial-scale timber harvesting, AND

(b) Maintain or enhance biodiversity and ecosystem functionality in areas where improved forest management is undertaken.

Principle 9.8 - Food Requirements

- The Project activity shall not negatively influence access to and availability of food for people affected.

Principle 9.9 - Animal husbandry Requirements

- The welfare of animals shall be ensured by:

(a) Provision of sufficient drinking water, AND

(b) Access to daylight, AND

(c) The prohibition of cattle trainers, AND

(d) No hindrance in their sensory perception and performing their basic needs, AND

(e) Management policies and staff training to prevent mistreatment (evidence of animal mistreatment shall be treated as an immediate Non-conformity).

- Excessive or inadequate use of veterinary medicines shall be avoided. Thus, all medications shall be:

(a) Administered strictly according to label and package instructions, OR

(b) According to a trained veterinarian.

- Injured or sick animals shall be treated and isolated, if necessary, for recovery.
- Synthetic growth promoters including hormones shall not be administered.
- Animals shall be exposed to the least stress possible during transportation and slaughtering.
- Appropriate space per animal and stocking rates per land unit should be set according to their developmental and physical needs.

Principle 9.10 - High Conservation Value Areas and Critical Habitats[24] Requirements

[24] Critical habitats are a subset of both modified and natural habitats that require special attention. Critical habitats are areas with high biodiversity value, including any of the following features:

i. habitat of significant importance to Critically Endangered and/or Endangered species;
ii. habitat of significant importance to endemic and/or restricted-range species;

- No Project that potentially impacts identified habitats as identified above shall be implemented unless all of the following are demonstrated:
    (a) The risk of the Project negatively impacting the catchment and risks impacting project success shall be assessed and addressed to ensure its ongoing, long-term viability and impact on surrounding HCV and ecological assets.
    (b) No measurable adverse impacts on the criteria or biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values;
    (c) A robust, appropriately designed, and long-term Habitats and Biodiversity Action Plan is in place to achieve net gains of those biodiversity values for which the critical habitat was designated.
- Within the Project the area that is managed by the Project Developer and the area of impact downstream, the following shall be identified and protected/enhanced. In the case of downstream impacts, the Project shall ensure mitigation is in place within the Project Boundary such that the Project shall not adversely affect these areas:
    (a) Existing patches of native tree species, AND
    (b) Single solitary stems of native tree species, AND
    (c) All freshwater resources including rivers, lakes, swamps, ephemeral water bodies and wells
    (d) Habitats of rare, threatened and endangered species, AND
    (e) Areas relevant for habitat connectivity shall be identified and managed to protect or enhance biological diversity.
- If the Project is located in such habitats; the Project Developer shall:
    (a) Minimise unwarranted conversion or degradation of the habitat.
    (b) Identify opportunities to enhance the habitat as part of the Project. For Projects applying the Land Use & Forest Activity Requirements Projects, a minimum 10% of the Project area shall be identified and managed to protect or enhance the biological diversity of native ecosystems. For this, the HCV approach should be followed (www.HCVnetwork.org). This area has to be located within the project region and managed by the Project Developer. The area may also include the areas of the requirement (for example, buffer zones for water bodies in the case of Land Use & Forests).

iii. habitat supporting globally significant concentrations of migratory species and/or congregatory species;
iv. highly threatened and/or unique ecosystems; and/or
v. areas associated with key evolutionary processes.

Critical habitats include those areas that are
i. legally protected,
ii. officially proposed for protection,
iii. identified by authoritative sources for their high conservation value (such as areas that meet criteria of the World Conservation Union classification, the Ramsar List of Wetlands of International Importance, and the United Nations Scientific and Cultural Organization's world heritage sites), or recognized as protected by traditional local communities.

- The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design. The project can use mapping tools such as LEFT, IUCN Red List, IBAT or other appropriate nationally recognised tools may be used or visual inspection. The recommended methods include online tools, visual inspection, engineering or physical assessment, use historical data and verbal or written surveys with local residents.

Principle 9.11 - Endangered Species Requirements

- Under no circumstances shall the Project lead to the reduction or negative impact of any recognised Endangered, Vulnerable or Critically Endangered species[25].
- Habitats of endangered species shall be specifically identified and managed to protect or enhance them.
- The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being considered and incorporated into the project design.

[25] All endangered and critically endangered species as defined by the IUCN Red List; https://www.iucnredlist.org/

Gold Standard
for the Global Goals

TEMPLATE

FUND DESIGN DOCUMENT

PUBLICATION DATE **4.07.2023**
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CONTACT DETAILS:

THE GOLD STANDARD FOUNDATION

Chemin de Balexert 7-9
1219 Châtelaine
International Environment House 2
Geneva, Switzerland
Tel: +41 22 788 70 80
Email: help@goldstandard.org

Summary:

This document details the Impact Strategy of the Fund and contains the following Sections:

- Key Fund Information
- SECTION A - General description of the Fund
- SECTION B - Description of the Monitoring, Reporting and Verification (MRV) plan and Data Management system
- SECTION C - Governance
- SECTION D - Duration of the Fund

The Fund Manager must complete all sections and maintain all necessary supporting records and evidence.
This document (in word) and supporting records and evidence will be subject to third party assessment, along with other required documents listed below:

- Cover Letter
- Terms and Conditions

KEY FUND INFORMATION

Name of the Fund:	Subnational Climate Fund
Name of Enterprise managing the Fund:	Pegasus Capital Advisors
Version of Fund-DD:	1
Date of Version:	DD/July 2023
Host Country (ies) Targeted:	Africa: Burkina Faso; Cameroon; Côte d'Ivoire; Democratic Republic of the Congo; Gabon; Guinea; Kenya; Mali, Mozambique; Nigeria; Rwanda; Senegal; South Africa; Togo; Uganda Asia- Pacific: Cambodia; Fiji; Indonesia; Myanmar Latin America and the Caribbean: Bahamas; Brazil; Chile; Costa Rica; Dominica; Dominican Republic; Ecuador; El Salvador; Guatemala; Haiti; Honduras, Jamaica; Mexico; Panama; Uruguay Mediterranean: Albania; Jordan; Lebanon, Mauritania; Montenegro; Morocco; North Macedonia; Tunisia.
Fund-level Sustainable Development Impact Goals *A minimum of 3 SDGs - one of which must be SDG 13*	SDG 13: Climate Action SDG 5: Gender Equality SDG 8: Decent Work and Economic Growth SDG 11:Sustainable Cities and Communities

SECTION A. GENERAL DESCRIPTION OF THE FUND

A.1. Purpose and general description of the Fund

>> Describe the Fund including as a minimum:

(i) the SDG Impact Goals that the Fund seeks to achieve
(ii) how the fund will meet the established Impact Goals
(iii) how the fund will monitor progress towards its Impact Goals
(iv) how the fund will adjust in the interim if it is not on track to meet its Impact Goals
(v) a statement confirming the Fund will focus on positive SDG impacts while addressing any negative impacts that are expected, or may emerge

The Subnational Climate Fund ('SCF' or the 'Fund') aims to invest in mid-size low-carbon and climate resilient infrastructure to:

- mitigate climate change and strengthen adaptive capacities (SDG 13)
- improve livelihoods and enhance prosperity in emerging markets and developing countries (SDG 8)
- transform lives in local economies and promote inclusion by promoting women's economic empowerment (SDG 11 & 5)

To meet its impact goals, SCF has developed key targets and outcomes that build the foundation of its investment thesis. As part of its investment strategy and sector allocation, four main sectors were identified that can significantly contribute to the desired SDG impact.

Table 1: SCF Impact Thesis

Sectors	Impact outcome	Impact targets	Impact Goal
Sustainable Energy Solutions: ▪ Solar photovoltaic farms ▪ Energy storage solutions ▪ Wind parks ▪ Biomass power plants ▪ Energy efficiency solutions	▪ Enable access to clean and affordable energy ▪ Reduce CO_2 emissions and pollution ▪ Create local jobs ▪ Support education and economic growth through reliable electricity ▪ Provide access to clean water ▪ Combat domestic and ambient pollution ▪ Support a circular economy and sustainable use of resources ▪ Enhance resilience and reduce vulnerability to drought, pests, diseases and other climate-related risks and shocks ▪ Improve urban livelihoods ▪ Produce more and better food to improve nutrition security,	▪ SDG 13: Mitigate or avoid 80m tCO2e over the next 20 years ▪ SDG 5 & 8: Create 20'000 jobs, 10'000 jobs for women (min. 4'000) ▪ SDG 11: 17m citizens with improved living conditions	▪ SDG 13: Mitigate climate change and strengthen adaptive capacities ▪ SDG 8: Improve livelihoods and enhance prosperity in emerging markets and developing countries ▪ SDG 5 & 11: Transform lives in local economies and promote inclusion by promoting women's economic empowerment
Waste & Water Management: ▪ Waste sorting, treatment, recycling ▪ Composting facilities ▪ Proven conversion technologies ▪ Water & Sanitation			
Urban Development Solutions ▪ Climate infra and urban transport ▪ Digital infrastructure ▪ Smart city development ▪ Sustainable tourism infrastructure			
Sustainable Agriculture:			

▪ Sustainable high value crop agriculture ▪ Integrated food and agri value chains ▪ Agriculture technology or agritech ▪ Controlled environment agriculture	increased resilience, and boost incomes ▪ Pursue lower emissions for food produced ▪ Provide human well-being and biodiversity benefits		

Creating long-term value by considering impact on the people and planet is the starting point of the Fund's investment strategy. Investments are selected individually and seek measurable positive social, environmental, and economic impact. ESG and impact considerations are integrated throughout the entire investment cycle:

- **Screening Stage**: Every investment opportunity undergoes significant screening to identify how or whether it fits within SCF's investment themes and to ensure that the investment opportunity is not on the SCF exclusion list and complies with eligibility, sector-specific, and the Fund's proprietary impact criteria aligned with the Fund's targets. This also includes a first assessment of how and to what extent target impacts can be achieved by consulting Gold Standard and other approved methodologies of SDG impact quantifation. Criteria are also aligned with best practice standards such as IFC Performance Standards, Equator Principles, and the GS4GG.
- **Due Diligence Stage:** We conduct comprehensive due diligence on ESG risks and opportunities and potential impacts on sustainable development (see also A.3. Due diligence processes deployed by the Fund prior to investment decisions). Technical consultants may be engaged for additional expertise.
- **Investment Decision Stage**: Material findings from the screening and diligence stages help identify ESG performance gaps, enhance practices, and address positive and negative impacts which result in an ultimate investment decision.
- **Investment Agreement Stage**: Legal investment agreement(s) incorporate ESG and impact criteria, as appropriate. This can include ESG action plans to close ESG performance gaps, ESG and impact targets, and requirements to report on performance.
- **Holding, Monitoring & Reporting Stage**: We measure and monitor the investee's ESG and impact performance timely to gather insights, and report back to our investors on a regular basis. In addition, we engage with investee companies to improve their ESG and impact performance over time.
- **Exit Stage**: We are convinced that assets which are optimized operationally, financially, as well as for ESG and impact aspects are more attractive to potential future owners and yield better exit results while also attracting a broader set of potential exit partners.

Monitor progress and corrective actions

To monitor progress towards the impact goals, the Fund conducts the following activities:

- Frequent qualitative and quantitative measurement of the sustainability outcomes and impact of investments in accordance with internationally recognized standards and frameworks
- Structured and ongoing engagement with investee to enhance positive SDG impact and take corrective actions if ESG and SDG performance is not on track
- Ongoing monitoring and regular reporting (e.g. annual performance reports)
- Verification and Certification of ESG and SDG performance by third-party

Based on the activities described above, SCF seeks to enhance positive SDG impact while addressing any negative impacts that are expected, or may emerge.

A.2. Classification of Fund Objectives/Target Sectors

A.2.1. Describe the sectors, technologies and/or measures to be employed and/or implemented by the investments in the Fund.

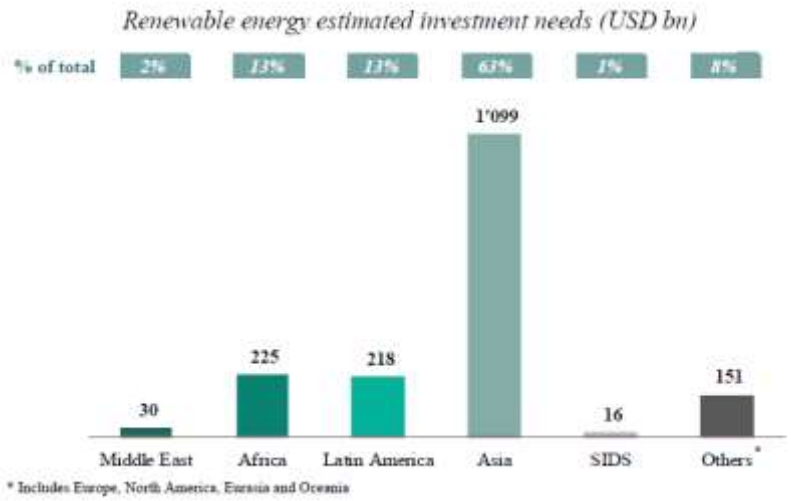
>> Include all information necessary to understand how the sectors, technologies and/or measures will achieve the Fund's objectives

SCF believes that it has identified several horizontal climate infrastructure sectors that collectively provide the most critical public services and support in sustainable economic transition while providing attractive return profiles.

In alignment with its impact vision, SCF's investment strategy is focused on the creation of measurable positive impacts by investing into climate resilient infrastructure and improved ecosystems. Target sectors include: 1) Sustainable Energy Solutions, 2) Waste & Water Management, 3) Urban Development Solutions, 4) Sustainable Agriculture. Please refer to Table 1 for the sub-sectors and technologies.

1) Sustainable Energy Solutions

The total renewable energy investment needs of an estimated USD 1,739 billion by 2030 are heavily driven by the main developing regions.[1] It needs to be recognized that especially the reliability of the national state grids is often a limiting factor for large renewable energy projects (100MW+)[2]. Mid-sized solar, wind, small-scale hydro and biomass plants can be deployed to overcome that limitation.



[1] Untapped potential NDCs, IRENA, 2017
[2] World Bank, Grid Integration Requirement for Variable Renewable Energy, 2019

Renewable energies form the cornerstone of the world's climate mitigation strategy. They represent a safe, reliable, affordable and immediately deployable pathway to a low-carbon future that can achieve over 90 per cent of the energy-related CO_2 emission reductions needed to meet climate goals[3]. Avoiding the worst effects of climate change will require the world to source at least 85 per cent of global power from renewables, with a minimum of two thirds of total energy from renewable sources – wind, solar, geothermal, hydro, bioenergy and the burgeoning tidal technology – by 2050[4]. Shifting from carbon-intensive energy to sustainable sources of energies can be considered a major societal and economic change and will not only be achieved with new renewable energy production capacity but will be also supported by energy efficiency and energy storage solutions. The Fund's approach to energy is seeking to implement and promote adequate and efficient production and use of renewable energies.

GHG emissions are evidently greatly reduced with renewable energies, especially in the cases of Solar PV, wind, and waves[5]:

Energy source	**Median lifecycle emissions (gCO2eq/kWh)**
Coal	820
Gas	490
Biomass[6]	230
Geothermal	38
Hydropower	24
Solar PV - rooftop	41
Solar PV – utility	48
Wind onshore	11
Wind offshore	12
Waves	17

In addition to mitigating climate change, the energy transition can also deliver long-term economic and social benefits. International Renewable Energy Agency's *Global Energy Transformation: A Roadmap to 2050* shows that it would boost global GDP by one per cent by 2050 and create millions of new jobs. This is especially the case in developing countries where the global demand for energy is not met yet.

2) Waste and Water Solutions

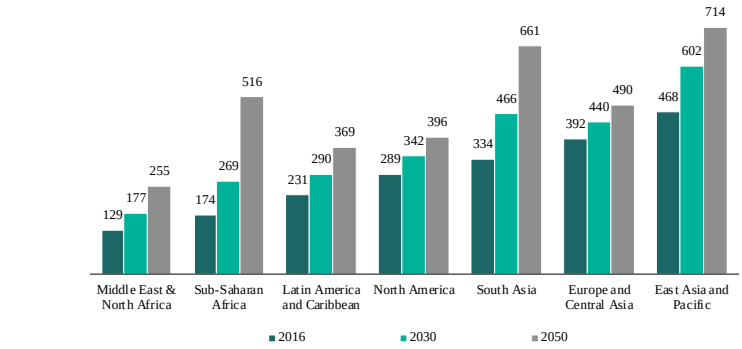
Waste and water solutions include a multitude of potential project types and business models along the waste and water value chains. Most commonly, waste and water management solutions are expected to refer to recycling and waste valorization, that the Fund believes bring the most economical

[3] International Renewable Energy Agency, 2019
[4] International Renewable Energy Agency, 2019
[5] IPCC Working Group 3, 2007
[6] Median emissions take into account old wood fuel systems, modern systems, foreseen for SCF are closer to the min emission of 130.

value and are the most sustainable way to manage waste and treat water. Material Recovering Facilities (MRF), composting plants, recycling and valorization units, and waste to energy plants are expected to constitute the majority of the investments in that sector.

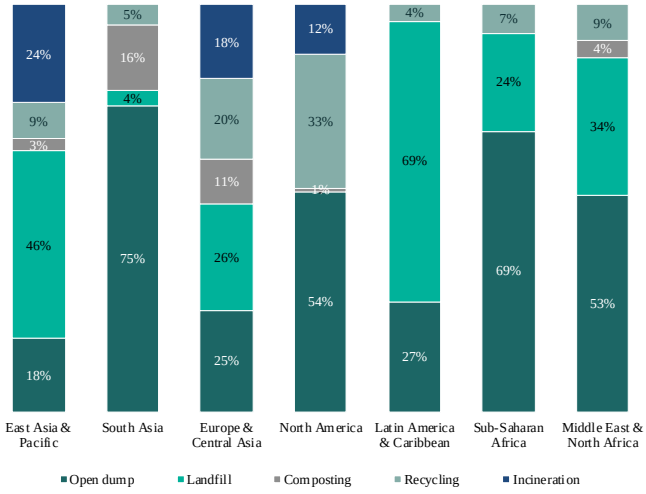
Increasing urban populations and tourism are causing an increasingly critical need for waste management solutions in developing countries. The absolute amount of waste generated as well as current and prospective growth in generation is particularly severe in the Fund's target geographies, causing environmental as well as local health and safety concerns[7] :

Projected municipal solid waste generation (in million tons per year)



Particularly open dumping practices in many developing regions and increasingly large landfills with limited regulation have contributed to waste becoming one of the major contributors to greenhouse gas ("GHG") emissions in various parts of the world and can be observed to be particularly predominant in the Fund's target regions, as seen in the chart below.

Waste composition and disposal by region



Roughly half of all solid waste in the world is organic[8], which decomposes into methane (CH4) and other potent GHGs. GHG emissions from solid waste in the world have been evaluated at 1300 MtCo2-eq in 2005[9]. Keeping these materials out of dumps and landfills and using them productively

[7] What a Waste 2.0, World Bank, 2018
[8] What a Waste 2.0, World Bank, 2018
[9] IPCC, AR4, Working Group 3, 2007

also relieves pressure on forests and other natural ecosystems and can therefore support both climate mitigation and adaptation strategies. Biochar and compost can further be re-used to enrich the soils to permit improved agriculture and allow soils to become a carbon sink.

Mismanaged waste not only affects climate but also natural ecosystems. For instance, improper disposal of plastic waste significantly disrupts marine ecosystems. At least 8 million tons of plastic end up in the world's oceans annually and make up around 80% of all marine debris[10]. On the opposite end, waste sorting, reusing, recycling and valorization improve the circularity of our economies generating economic value and jobs with resources that would be wasted otherwise.

Water projects provide people with greater access to safe drinking water and efficient methods of wastewater treatment. These project types also directly benefit the climate in several important ways. Water projects displace the use of firewood for boiling water, significantly reducing emissions and alleviating pressure on local woodlands (important carbon sinks). Modern water filtration further decreases the use of energy from fossil fuels for boiling water significantly. From an SDG perspective, clean water projects reduce indoor air pollution, improve health and living conditions for the local population, and provide economic benefits such as new job opportunities and less time and money spent acquiring fuel for cooking.

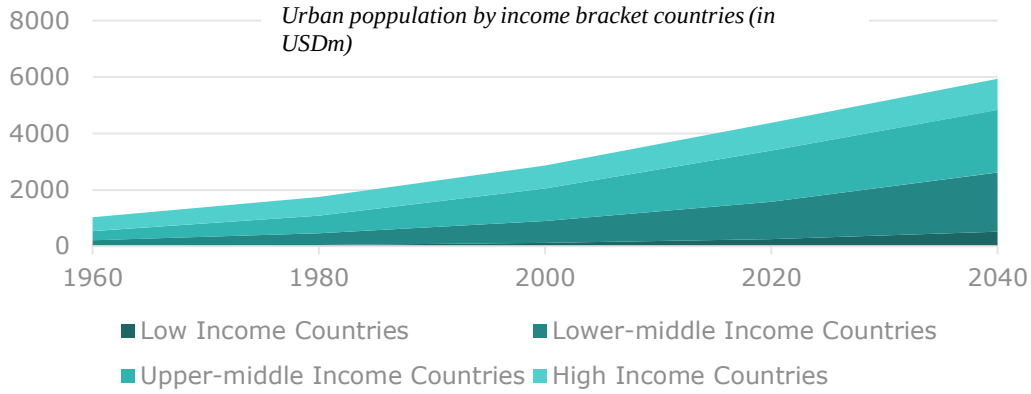
For wastewater treatment, GHGs include carbon dioxide (CO2) from aerobic (oxidation processes), methane (CH4) from anaerobic processes (3–19 % of global anthropogenic methane emissions), and nitrous oxide (N2O) (3 % of N2O emissions from all sources) associated with nitrification/ denitrification (NDN) processes, and can, as an intermediate product, be emitted to the atmosphere. Modern treatment reduces these emissions, as opposed to conventional anaerobic lagoons that will emit methane for several decades. From an SDG perspective, modern water treatment reduces the risk of watershed contamination, improves health and living conditions for the local population, and provides economic benefits such as new job opportunities.

3) Urban Development Solutions

Urban Development Solutions entail a variety of infrastructure solutions and services, meant to provide environmentally and socially sustainable, adequate, and scalable structures for a world of ongoing urbanization and global mobility. In SCF's context, these solutions include climate infrastructure and urban transport (e.g., e-vehicle infrastructure, sustainable public transit, EV buses), digital infrastructure (e.g., connectivity solutions, powering telco infrastructure), smart city development (e.g., smart traffic management systems, intelligent street lighting), and sustainable tourism infrastructure (e.g., ecolodges with ecosystem services). These solutions are anticipated to empower existent and developing urban communities while protecting surrounding resources and biodiversity.

Around 4.4bn people, i.e. c. 56% of the world's population, reside in cities and urban areas. This number is anticipated to almost double and increase to up to 70% by 2050[11]. This growth is especially driven by the strong population growth and urbanization in developing countries[12]:

[10] Primary microplastics in the oceans, IUCN, 2017
[11] An Urbanising World, International Institute for Environment and Development, 2021; Sustainable Cities and Communities, World Bank, 2020
[12] An Urbanising World, International Institute for Environment and Development, 2021



The increasing pace at which cities keep expanding poses various fundamental challenges, like the provision of housing, sufficient and sustainable transport systems, basic services like water, waste, and electricity, employment, and others. At the same time the unplanned rapid growth of city land area and population exposes many communities to threats of natural disasters and diseases.

As a result, the demand for urban infrastructure, with a focus on developing regions, is increasing rapidly and has yet to be matched by the supply of private and public capital. IFC estimates the investment potential between 2019 and 2030 in various urban areas like transport, electric vehicles, and green buildings and infrastructure to be more than USD 26tn[13].

Tourism infrastructure is recognized by SCF as another essential part of global urban development, given its substantial anticipated growth of over 13% CAGR to 2030 and its strong contribution to the GDPs of many developing urban areas and centers[14]. As tourism contributes to the immense strain that ongoing urbanization is putting onto the environment, ecotourism continues to emerge as a global megatrend to relieve this situation. Ecotourism is mainly defined by tourism infrastructure and services that seek to maintain and improve local ecosystems and biodiversity. This definition entails components such as land rehabilitation, wildlife reintroduction and maintenance, removal of invasive species and planting of native species, local community inclusion, and conservation research efforts. Ecotourism is therefore supposed to support local urban communities by maintaining and enhancing the economy without adverse impacts on the local environment.

4) **Sustainable Agriculture**

Sustainable Agriculture as a sector covers a variety of sub-sectors that all incorporate and promote the usage of sustainable and scalable techniques and technologies to maximize food output while preserving land and biological resources as well as maintaining and enhancing biodiversity. Main sub-sectors in the SCF's focus include sustainable high-value crop agriculture (utilizing restorative, organic practices with advanced techniques like double-cropping) of crops like soybeans, tea, and cashews, integrated food and agriculture value chains (e.g., drip feed irrigation systems or solar-powered water irrigation, storage and processing facilities), agricultural technology for agritech (e.g., biotech driven insect farms, innovation in soil conservation and irrigation), and controlled environment

[13] Climate Investment Opportunities in Cities, IFC, 2018
[14] IBISWorld Research, 2021

agriculture, including mostly high-tech greenhouses in areas of low agricultural yield and food insecurity.

Contributing about 20% of total global GHG emissions, agriculture is expected to be a primary field of investment and growth to transition to more sustainable, ecosystem enhancing standards[15]. This urgency is further enhanced by the increasing degradation of productive farmland, leading to the estimation that at the current pace of soil degradation through conventional agriculture, the world may have only 60 years of productive harvesting remaining[16]. Sustainable agriculture therefore seeks to combine and transition traditional methods, like crop rotation, controlled livestock grazing systems and agroforestry, with more advanced precision farming technologies to enhance the productive use of inputs like land, water and bio-based fertilizers.

Conservation agriculture is expected to continue growing from 148 million hectares to 327-400 million hectares by 2035[17]. On the side of regenerative agriculture, growth from an estimated 11.84 million hectares of current adoption to a total of 221-322 million hectares by 2050 is expected[18]. This rapid adoption is based in part on the historic growth rate of organic agriculture, as well as the projected conversion from traditional agriculture to conservation agriculture and regenerative cropping over time[19]. Regenerative agricultural approaches see strong improvements especially in pest control, crop quality, quantity of harvesting cycles and yield over time, resulting in up to 78% profitability improvements over conventional farming methods. This is not only expected to further increase the pace of adoption but result in profitable investment opportunities in a heavily growing market.

Complementary Component across All Sectors: Nature-based Solutions (NbS)

Nature-based Solutions ("NbS"), as defined by IUCN, are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. They are underpinned by benefits that flow from healthy ecosystems and target major challenges like climate change, disaster risk reduction, food and water security, health and are critical to economic development.

As NbS are estimated to contribute up to 37% to mitigating climate change and meeting Paris climate goals[20], they increasingly become part of the agendas of most national and subnational governments and in turn businesses and other entities in most areas around the globe. Examples for nature-based solutions to protect and restore in these areas include mangrove forests, improved/restored reefs for flood protection, the complementary use of plants or crops that provide nutrients to soil, cool down the surrounding area and remove CO2, the use of trees or other native plants to stabilize soil and land surfaces, and many others.

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[15] Agriculture and Climate Change, McKinsey, 2020
[16] Only 60 years of farming left if soil degradation continues, Scientific American, 2014
[17] Regenerative agriculture and Conservation agriculture, Project Drawdown, 2017
[18] Regenerative agriculture and Conservation agriculture, Project Drawdown, 2017
[19] Regenerative agriculture and Conservation agriculture, Project Drawdown, 2017
[20] Nature-based Solutions, IUCN, 2020

The Fund sees nature-based solutions as an important element to enhance climate infrastructure projects and spur long-term economic, social and environmental benefits and intends to integrate nature-based solutions components across their entire portfolio of investments in all target sectors and geographies. Most notably, SCF's efforts are backed by IUCN's nature-related competencies and pioneering role in the establishment, promotion, and advancement of Nature-based Solutions as a sector.

A preliminary assessment of the NbS potential of an opportunity is conducted at the screening stage to understand whether the investment addresses one or more pressing societal challenges and relies on functioning and healthy ecosystems and/or ecosystem products and services to achieve its investment objectives, and whether this is a primary outcome. The initial assessment lays the groundwork for further investigation into whether a more comprehensive NbS assessment should be conducted to apply IUCN's NbS framework and seek NbS opportunities.

A.2.2. Classification of Fund Impacts

>> Classify the investor contribution using the Impact Management Project ABC Classification system below. Please refer to the GS4GG Claims Guideline which regulates what claims may be made from Certified Funds.

	Investor Contribution	**Sectors, technologies and/or measures**	**Act to avoid harm** *(subsuming May and Does Cause Harm)*	**Benefit stakeholders** *(non-monitored and non-certified SDGs where benefit is expected from the sector/technology etc)*	**Contribute to solutions** *(min. 3 SDGs to be monitored and certified across Fund)*
1	**Signal that impact matters** + Engage actively + Grow new/undersupplied capital markets + Provide flexible capital	*Sector/technology Measure 1*	*GS Safeguards eliminate harm*	*SDG (X, n)*	*SDG (X, n)*
		Add/delete rows as needed			
2	**Signal that impact matters** + **Engage actively** + **Grow** new/undersupplied capital markets + Provide flexible capital				
3	**Signal that impact matters** + Engage actively + **Grow new/undersupplied capital markets** + Provide flexible capital				

4	**Signal that impact matters +** **Engage actively +** **Grow new/undersupplied capital markets +** Provide flexible capital				
5	**Signal that impact matters +** Engage actively + **Grow new/undersupplied capital markets +** **Provide flexible capital**				
6	**Signal that impact matters +** **Engage actively +** **Grow new/undersupplied capital markets +** **Provide flexible capital**	Sustainable Energy Solutions	*GS Safeguards eliminate harm*	SCF generates various effects on positive outcomes for people and the planet	SDGs 5, 8, 11, 13
		Waste & Water Management	*GS Safeguards eliminate harm*	SCF generates various effects on positive outcomes for people and the planet	SDGs 5, 8, 11, 13
		Urban Development Solutions	*GS Safeguards eliminate harm*	SCF generates various effects on positive outcomes for people and the planet	SDGs 5, 8, 11, 13
		Sustainable Agriculture	*GS Safeguards eliminate harm*	SCF generates various effects on positive outcomes for people and the planet	SDGs 5, 8, 11, 13

A.3. Due diligence processes deployed by the Fund prior to investment decisions

>> Provide a description of:

a. *Procedure/process[21] to screen investments for their ability to comply with GS4GG requirements, including:*
   (i) Principles and Requirements
   (ii) Fund Requirements (including Exclusion Criteria)
   (iii) Safeguarding Requirements

[21] Please refer to Appendix 2 for a sample table that may be used to demonstrate compliance at investment level

(iv) *Stakeholder Consultation Requirements*
(v) *Activity Requirements (Renewable Energy, Community Services and Land Use and Forests, as applicable)*
(vi) *Methodology Eligibility Requirements*

b. *Procedure/process to screen investments to help achieve Impact Goals and identify baselines (including how ex-ante assessments of anticipated impacts will be conducted while discussing risk and mitigation strategies to avoid missing impact targets or overstating planned impacts)*
c. *Procedure/process for assessing potential investees for good governance processes that include transparency, inclusiveness, gender sensitivity, as well as those that are further outlined in the GS4GG Safeguarding Requirements*
d. *Procedure/process to identify any need for Technical Assistance, including (but not limited to):*
   (i) *carrying out stakeholder consultations as per GS4GG Requirements*
   (ii) *complying with GS4GG Safeguarding Principles, including governance*
   (iii) *supplying the necessary data to support impact assessment as per GS4GG Requirements (which may require a new methodology approval)*
e. *Procedure/process to address any initial non-compliance with GS4GG Safeguarding Principles, including a timebound plan for closing gaps, with milestones to be met as interim goals and the actions to be taken if the gaps are not closed within the timeframes developed*

Pegasus applies its proprietary impact assessment strategy and framework to screen, diligence, invest and manage portfolio investments. The assessment helps ensure that investment opportunities include gender sensitivity and SDG impact pathways, mandatory stakeholder engagement, assessment of community Health, Safety and Working Conditions, and anti-corruption, among other criteria.

At screening stage, investment opportunities are screened against the Fund's exclusion, eligibility, and impact criteria. The latter includes an estimate of carbon emissions avoided or mitigated, jobs created, and number of beneficiaries against the baseline. If possible, a numerical or qualitative assessment is performed in late due diligence.

Moreover, an initial risk assessment is conducted in accordance with IFC's approach to environmental and social (E&S) categorization. The Fund only invests in:

- Risk 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;
- Risk category C: business activities with minimal or no adverse environmental or social risks and/or impacts.

In addition, the initial screening serves to identify material E&S risks (incl. sector-specific risks) in accordance with the reference framework, which is aligned with GS4GG requirements, IFC Performance Standards, and other internationally acknowledged frameworks. The criteria include:

- Overall sustainability and risk management
- Stakeholder engagement
- Human rights and labor rights
- Child and forced labor
- Gender equality and women's rights
- Occupational and community health and safety
- Land acquisition and tenure
- Cultural heritage, Indigenous peoples, Displacement and resettlement
- Anti-Corruption and anti-bribery

- Energy, Emissions and air pollutants
- Water
- Waste (hazardous and non-hazardous)
- Biodiversity, land use and soil

Furthermore, the Fund uses the IMP investment dimensions to understand the impact of each investment.

Impact Dimension	***Impact Questions***
What	***What are we addressing and what is the impact?*** *Defines the investee's degree of targeted impact, outcome, output, and how the business model creates value.*
Who	***Who is affected and / or benefitting from the impact?*** *Defines the affected stakeholders and their characteristics, and geographical scope. We aim to understand the context for local and affected communities throughout the investment and project life cycle to identify and manage environmental and social impacts.*
How	***How large is the impact?*** *Defines the scale (the number of individuals experiencing the outcome and impact), the depth and reach (difference between baseline and the outcome in the period), and the duration (the period during which the stakeholder experiences the outcome).*
Contribution	***What is our contribution and what have we changed?*** *Defines our contribution on the investee's social, environmental and economic impact that would not have occurred if the investee and our partnership had not existed. We differentiate between financial additionality (whether the investment would materialize without our investment and activities due to scarcity of external funding in many developing countries and market failures) and value additionality (whether impact would materialize without our investment and activities related to strategic priorities, value creation activities, technical assistance, capacity building, active stewardship, etc.).*
Risk	***What is the risk that we don't achieve the desired impact?*** *Defines external risks to an investment and project such as climate-related risks (e.g. transition and physical risk), reputational risk, or business integrity risks.*

Based on the initial screening, needs for a more comprehensive due diligence and/or environmental and social impact assessment are identified. The continuous assessment identifies E&S risks in more detail and any measures required to be implemented to ensure compliance with the reference framework. This can also include an E&S Monitoring & Management Plan and Action Plan to address any initial non-compliance with the reference framework, including a timebound plan for closing gaps, with milestones to be met as interim goals and the actions to be taken if the gaps are not closed within the timeframes developed. Considerations are reported to the Investment Committee to support decision-making. ESG and impact criteria are integrated into legal documentation where appropriate. This includes reporting requirements on ESG and SDG KPIs.

Stakeholder engagement is critical to understanding the views and interests of different stakeholders such as affected people in surrounding communities. Investees will be assessed on the basis of their stakeholder engagement approach. Where appropriate, stakeholder consultation is conducted in accordance with Gold Standard's stakeholder consultation requirements. An ongoing feedback and/or grievance mechanism is required so that affected stakeholders have the opportunity to submit any feedback or raise grievances at any time.

The Fund also has a technical assistance facility and benefits from the combined capacity, experience and knowledge of IUCN, R20 and Gold Standard to achieve its impact objectives. The three organizations are accustomed to working in partnership with clearly defined processes and distributed roles and responsibilities. Technical assistance supports project development and capacity building to improve sustainable development impacts. Regular contacts allow for knowledge sharing that can inform investment analysis. Inputs are used during pipeline development, screening, due diligence, and monitoring and holding phases. Particularly during the screening and due diligence process, opportunities for technical assistance are identified on an ongoing, as-needed basis to fill any gaps in the reference framework.

A.4. Physical/ Geographical boundary of the Fund

>> Provide details of the defined boundary of the Fund in terms of a geographical area e.g. municipality, region within a country, country or several countries within which all investments to be included in the fund will be implemented.

SCF is a blind-pool fund and can invest into up to 42 countries:

Africa: Burkina Faso; Cameroon; Côte d'Ivoire; Democratic Republic of the Congo; Gabon; Guinea; Kenya; Mali, Mozambique; Nigeria; Rwanda; Senegal; South Africa; Togo; Uganda
Asia- Pacific: Cambodia; Fiji; Indonesia; Myanmar
Latin America and the Caribbean: Bahamas; Brazil; Chile; Costa Rica; Dominica; Dominican Republic; Ecuador; El Salvador; Guatemala; Haiti; Honduras, Jamaica; Mexico; Panama; Uruguay
Mediterranean: Albania; Jordan; Lebanon, Mauritania; Montenegro; Morocco; North Macedonia; Tunisia.

A.5. Exit Strategy

>> Detail the exit strategies for investments, with particular attention to ongoing contribution to Sustainable Development post exit. The exit plans shall include:

(i) transition strategies (including time to exit)
(ii) details of how a "Do No Harm" approach will be applied and assessed across all impacts, not only those that are intended impacts of the Fund
(iii) for investments transferred to new/other Funds, a caveat that ongoing impact assessment must be carried out

Each investment opportunity is selected individually based on its value proposition for SDG impacts in the long-term and beyond exit. Potential exit opportunities shall be evaluated periodically on a strategic basis and opportunistically. Time to exit varies from investment to investment and can typically range from 2-10 years (shorter and longer periods are possible). In addition, the Fund's engagement approach with portfolio companies aims to develop ESG and impact capacity over time to prepare for enhanced capabilities at exit stage.

The Fund reviews potential exit opportunities at the beginning of the investment and periodically throughout the holding period. SCF believes that its portfolio of operational, certified impact infrastructure will be attractive prospective investment targets due to a current lack of investible impact projects in the market and high risk of greenwashing of existing solutions. Additionally, SCF believes the limited ticket size of up to USD 75 million has the potential to attract numerous potential buyers. The following potential exit opportunities are examples of what may be considered for each investment:

- **Sale to equity partners**: Strategic and financial co-investors, particularly in case of local institutions, are expected to have longer term interest holding the asset.
- **Sale to local operating partners:** Continuous project revenues can be used by the project developers to buy out equity investors in the medium term.
- **Dividend recap through green bonds**: Both debt and equity investment demand for certified and secure climate infrastructure assets increases. SCF's assets are expected to correspond to these criteria. While debt is more difficult to raise prior to the construction of these assets, it is expected that the operational assets with existing track record towards the end of the SCF holding period will likely be suitable to attract debt refinancing.
- **Sale to local authority**: As SCF's assets provide a public service to serve the growing local urban population, local authorities have interest in providing for and maintaining operations.
- **Sale to impact investment platform/international impact investor**: As the universe of impact funds is steadily growing the demand for vetted impact assets in developing countries naturally increases. SCF's operational and proven economic assets are an attractive target for international investors without SCF's technical competencies and local presence.

We are committed to promoting responsible and sustainable investing practices including responsible exits to promote the long-term sustainability of the investee companies, the value for their stakeholders, and the continuation of positive social and environmental outcomes. Exit is a critical part of the investment process rather than an afterthought. To operationalize our responsible exit approach, we aim to undertake the following actions:

1. Impact preservation: We will strive to preserve and enhance the positive social and environmental impacts during our investment period. This includes engaging with the investee companies to enhance their performance and the impact on employees, communities, and the broader ecosystem pre-exit.
2. Assessment of exit strategies and potential acquires: We aim to carefully evaluate exit opportunities and potential acquires to assess their impact on ESG and stakeholders, and whether the potential acquirers have the capacity, strategy, and commitment to sustain the impact. This includes an assessment of how the exit opportunity and potential acquirer addresses "Do No Harm" and ongoing impact assessments.
3. Engagement with stakeholders: Throughout the exit process, we aim to engage with affected stakeholders to address financial and impact risks during the transition and have an inclusive dialogue. This can include engagement with stakeholders such as the investee company, management teams, employees, local communities, and other investors, to understand and address their perspectives and concerns during the exit process.
4. Sustainable transition and knowledge transfer: To support the sustainable transition of the portfolio company, we will facilitate knowledge transfer and capacity-building initiatives to strengthen the capabilities of the acquirer and stakeholders involved.
5. Contractual provisions: We may also consider including covenants or terms in the transaction documentation to bind the acquirer to the impact assessments or objectives if legally viable.

However, a genuine understanding of the acquirer's intentions based on their strategy and actions provides greater confidence that the impact will not only continue but potentially be enhanced.

6. Monitoring and Reporting: We will establish a monitoring and reporting mechanism to track the implementation of our responsible exit approach. Regular assessments will be conducted to evaluate the effectiveness and impact of our exit practices.
7. Review and Improvement: We are committed to continuous improvement and will regularly review and update our exit approach to align with evolving best practices, industry standards, and stakeholder expectations.

SECTION B. DESCRIPTION OF THE MONITORING, REPORTING AND VERIFICATION (MRV) PLAN AND DATA MANAGEMENT SYSTEM

>> Provide a detailed description of the operational and Management system of the fund including

(i) the impact assessment process that will occur throughout the life of the Fund
(ii) details of data aggregation and QA/QC processes (if any) for the monitored data from Investments.
(iii) Records and documentation control process for each investment under the Fund;
(iv) Frequency of reporting Fund level outcomes (note: beginning when more than 10% of planned assets for a tranche or full fund (lesser of the two) are invested).
(v) Roles and responsibilities of personnel involved, noting Fund Manager (s) are responsible for ensuring that Investees comply with GS4GG rules
(vi) disclosure of any performance incentives offered that are linked to meeting the Impact Goals of the Fund

The Fund aims to collect, monitor, and report on ESG and impact related data on an ongoing and regular basis with a standardized approach in order to track ESG and impact performance against targets and to take corrective measures in time. Data and information are collected and recorded on investee level and aggregated to the fund level. Analyzing performance based on the data allows corrective actions to be taken to meet goals over time.

For each investment, a management & monitoring and/ or action plan shall be developed and revised over time to define measures, responsibilities, and a timeline to mitigate ESG risks and enhance ESG performance. Reporting obligations aligned with the Fund's impact objectives, Gold Standard's environmental and social safeguards, and the Principal Adverse Impacts (PAIs) of the European Union's Sustainable Finance Disclosure Regulation (SFDR) shall be built into legal documents and investment agreements. The management & monitoring and/ or action plan, reporting requirements, the format, and process are established and agreed with investee companies during late due diligence or at the onboarding stage at the latest. Performance and reports are continuously monitored to ensure that potential ESG or reputational issues are quickly identified and properly managed.

Data is collected from investee companies directly who are expected to develop or have the ability to provide robust and reliable data on the indicators periodically. An aggregated reporting across the portfolio is conducted on an annual basis. The Fund provides annual performance reports to investors, including ESG and impact related data at a portfolio level and updates on specific investments.

Investment teams and the ESG and impact manager are responsible for monitoring the progress of portfolio companies by receiving regular ESG data and updates, conduct site visits and engage proactively with the investee company to enhance ESG and impact performance, reporting, and the implementation of action plans and measures during the holding period. Data and information are reviewed to identify gaps and take corrective actions with the goal to achieve the Fund's impact objectives. In addition, the assessment of KPIs and information build a critical part of the ongoing engagement approach with investee companies to discuss measures and actions to improve operational, strategic, and management processes and performance based on lessons learnt.

SECTION C. GOVERNANCE

>>

a) *Describe how the Fund's governing bodies (e.g. the board and/or the investment committee):*
   - *(i) Have competence in sustainable development issues and impact management*
   - *(ii) Prioritize gender and other dimensions of diversity, as demonstrated by composition, culture and including different voices/perspectives in decision making*
   - *(iii) Provide active oversight*
   - *(iv) Hold the CEO/Managing Director accountable for Fund operations complying with the GS Fund Requirements, in particular policies, processes and disclosures in 2.1.2 and 2.1.4*
   - (v) *Meet the national minimum corporate governance standards, as appropriate*

(b) *Describe how the Enterprise and not just the Fund will follow GS4GG Safeguarding Principles and Requirements within 2 years of Design Certification, and*

(c) *Provide evidence of a public statement (e.g. a webpage) about the Enterprise's intent to establish the Fund and its SDG Impact Goals*

The Funds' governing bodies benefit from diverse and complementary competencies to ensure that sustainable development issues and impact management is addressed appropriately through the following roles and bodies:

- ESG and Impact Manager: Ensures conformity with the impact management and measurement system, incl. implementing policies, processes, monitoring and reporting systems in place to achieve the Fund's impact objectives.
- Investment Committee: The Investment Committee of the Fund is a team of senior investment professionals that reviews and approves each Fund-level investment and disposition undertaken by the Fund. Investment Committee meetings are called on an as-needed basis and members of the applicable investment team typically present potential transactions to the Investment Committee for consideration. This includes a discussion about ESG and impact considerations and if the investment can contribute to the Fund's impact objectives. The Investment Committee has active oversight and includes investment professionals from Pegasus Capital Advisors, incl. Pegasus' General Counsel & Chief Compliance Officer and ESG & Impact Manager, and R20. Gold Standard and IUCN are non-voting observers to the Investment Committee.
- Advisory Board: The Fund's advisory board is comprised of individuals who have extensive experience and networks within the geographic areas and investment sectors of the Fund. Gender and geographic diversity were considered in the selection of the board. The board is expected to substantially contribute to all parts of the investment process.

The CEO is accountable for Fund operations complying with the GS Fund Requirements, in particular policies, processes and disclosures. Pegasus aims to implement the GS4GG Safeguarding Principles and Requirements within two years of Design Certification on enterprise level.

A public statement about Pegasus's intent to establish the Fund and its SDG Impact Goals can be found at https://www.pcalp.com/impact/ .

SECTION D. DURATION OF THE FUND

D.1. Date of first submission of Fund to Gold Standard

>> State the date when document was first submitted to Gold Standard for Fund Design Certification

November 4, 2022

D.2. Duration of the Fund

>> State the total duration of the proposed Fund in years

Commitment period is 5 years from the final Fund closing date.

Term of the Fund is 12th anniversary of the final Fund closing date, subject to up to three, one-year extensions.

Notice to Recipient

The Fund Design Document ("FDD") is for information purposes only and may not be reproduced or distributed under any circumstances without our prior written consent. This FDD was developed in accordance with Gold Standard's FDD template and is intended to summarize the impact approach for the Subnational Climate Fund in implementing environmental, social and governance ("ESG") principles and impact strategies into its investment process and the ongoing management of the portfolio companies. Neither Pegasus nor Gold Standard makes no representation or warranty regarding the information set forth in this FDD, including, but not limited to, the accuracy or completeness of the information or that Pegasus will successfully identify or mitigate any particular ESG-related risk or capitalize on any ESG-related opportunity.

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Past performance should not be viewed as a guide to future performance. Actual results could differ materially from those discussed or implied herein, as a result of various factors, including future economic, competitive, political, regulatory or market conditions of future business decisions. There can be no guaranty that Pegasus will successfully implement any of the ESG policies or procedures outlined in this FDD or that, if implemented, such policies and procedures will mitigate any particular ESG risk or identify any particular ESG opportunity. The value of an investment in products such as described herein may fall as well as rise and any investment carries the risk of a total loss of capital. An investment in such products is suitable only for sophisticated investors and requires the financial ability and willingness to accept the high risks and lack of liquidity inherent in such an investment.

APPENDIX 1 - CONTACT INFORMATION OF FUND MANAGER (S)

Responsible person/ entity	Natalie Gartmann
Organization	Pegasus Capital Advisors
Street/P.O. Box	750 East Main Street, Suite 600
Building	
City	Stamford
State/Region	CT
Postcode	06902
Country	United States
Telephone	1-203-869-4400
E-mail	Ngartmann@pcalp.com
Website	https://www.pcalp.com/
Contact person	Natalie Gartmann
Title	ESG and Impact Manager

APPENDIX 2 - SAMPLE TABLE

Sector:	RE/EE/Waste:	
Technology:	Hydro/Wind/ etc.:	
Eligibility Criteria	**How projects can demonstrate compliance with the criteria**	**Evidence of compliance that can be provided**
1. e.g. Projects from waste management sector do not divert resources from other uses	e.g. Explain how the waste type handled by project was disposed in pre-project scenario	e.g. Third party reports etc.
(add rows as necessary)		
Sector:	RE/EE/Waste:	
Technology:	Hydro/Wind/ etc.:	

Revision History

Version	Date	Remarks
1.1	15 Jul 2022	Version following first revision of Fund requirements: Editorials, including clarification of the ABC approach
1.0	20 May 2022	Initial adoption

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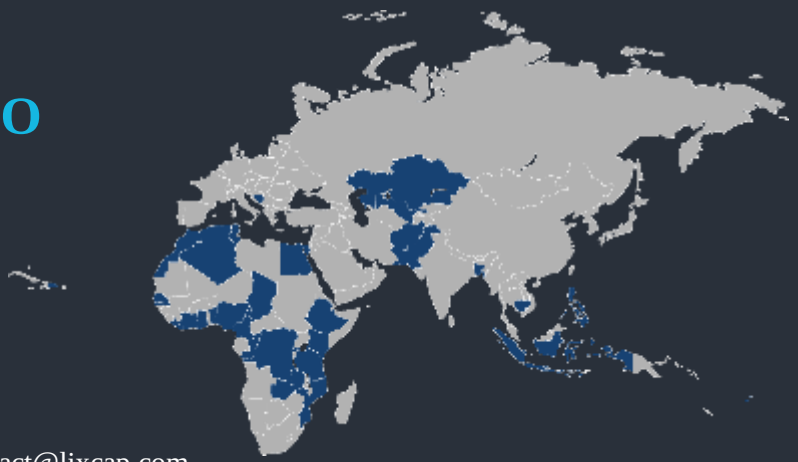
ADVISORY & CAPITAL

Environmental and Social Impact Assessment for Ifria : Integrated cold chain services

Location : Integrated Platfrom in DIAMNIADIO

March 2023

Past Performance Geography



Contact@lixcap.com

www.lixcap.com

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1 Introduction

1.1 Project display

1.1.1 Overview

Ifria is an integrated cold chain development company (DevCo) focusing on the development and operation of cold chain logistics assets ranging from storage/logistics centres.

Ifria has received funding from USDFC and IFC for the implementation of cold chain cold storage infrastructure in Senegal. This project is perfectly in line with a sustainable development approach to the agricultural, pharmaceutical and other products intended for human consumption value chain, and concretizes the objectives and orientations of the Government of Senegal, in particular the Emerging Senegal Plan. (2019-2035) and the economic development of the Dakar region.

Ifria wants to install a modern Cold Warehouse at the Diamniadio Integrated Industrial Platform in the Dakar region in Senegal. Its infrastructure will integrate measures to mitigate the impact of the project on the environmental component by installing solar panels, best quality insulation and equipment to reduce water use, among other things. Ifria is a temperature-controlled logistics service provider that will manage supply chains for agri-food and pharmaceutical products. Ifria will offer its cold rooms and services to agricultural, agri-food and pharmaceutical players in the region.

The construction of this ambient and negative temperature storage infrastructure for products intended for human consumption, imported and exported and pharmaceutical products meets both national and international standards and requirements on the social and environmental aspects. Value-added services include: Stock management, Containerization, documentation, administration, order preparation, loading and unloading of trucks and containers, labeling and palletization.

The installation of a cold chain warehouse in the Dakar region is going to have a significant impact on various aspects of the supply chain, especially for companies and farmers who deal in perishable goods or pharmaceutical products requiring temperature-controlled storage and transport. Among these main impacts:

1. Improved product quality, especially for export: A cold chain warehouse ensures that perishable products are stored at the optimum temperature, helping to maintain product quality and integrity.
2. Reduction of waste: With the Ifria warehouse to be set up, products are less likely to spoil or be damaged due to temperature fluctuations, which reduces waste and improves the overall efficiency of the supply chain.
3. Improved safety and compliance: For some industries such as pharmaceuticals, installing a cold chain warehouse is essential to comply with regulatory requirements and ensure consumer safety.

In this report we will deal in detail with the main impacts generated by the activities of the unit (cold storage) planned in Diamniadio and the measures taken by the operator to mitigate these impacts as well as the environmental monitoring and surveillance program. .

The sketches of the project are in the Appendix (Appendix: Project outline)

1.1.2 Scope of the environmental and social impact study

The delimitation of the zone of influence is drawn up taking into account the foreseeable impacts on the components of the physical, biological and human environment.

The area of influence of the project delimited within the framework of this study takes into account the Integrated Industrial Platform of Diamniadio

The environmental and social impact study will describe the environmental and social conditions of the project's area of influence which includes the Diamniadio Integrated Industrial Platform , and will identify the environmental, social and economic impacts and benefits of the project, and will recommend reduction measures. The study is organized into six chapters. The environmental and social impact study will address the following factors:

- Review relevant documentation and literature related to the program (including feasibility studies and master plans) so that appropriate plans and social and environmental management instruments can be developed and developed, ensuring that particular attention is given to achieving the objectives of the project concepts;
- Develop a procedure to identify potential environmental and social impacts of specific activities, and measures to address and manage those impacts; or whether there are potentially significant effects on natural habitats, physical or cultural resources at particular project work sites that would require further and separate analysis due to these complexities; Create appropriate mitigation measures to be incorporated into project contract documents;
- The ESIA should also include legal and institutional arrangements and information on the agency or agencies responsible for overseeing project impacts;

1.1.3 Project location and access

The project site is already designed and equipped to accommodate logistics activities.

The project site is located in the International Industrial Platform of Diamniadio Region of Dakar. The project is directly connected with the A1 motorway allowing it to be connected mainly with the city of Dakar. Website: https://goo.gl/maps/mXAEHoLjTgNPeuyu7

1.1.4 Report structure

The study report is prepared according to the table shown below:

Table 1: Structure of the report

Chapter	Content
Chapter 1 – Introduction	Provides a brief history of the project, as well as the purpose, methodology and structure of the report.
Chapter 2 – Legal framework	Describes relevant policies and environmental and social guidelines and policies
Chapter 3 – Environmental Reference State	Provides a detailed baseline condition of the existing physical, biological and socio-economic environment in the project area.

Chapter	Content
Chapter 4 – Potential environmental impacts	Presents the foreseeable impacts on the physical, biological and socio-economic and cultural environment due to the proposed project.
Chapter 5 – Social Reference State	Provides a detailed baseline condition of the existing physical, biological and socio-economic environment in the project area.
Chapter 6 – Potential social impacts	Presents the foreseeable impacts on the physical, biological and socio-economic and cultural environment due to the proposed project.
Chapter 7 – Mitigation Measures	Provides mitigation measures to reduce, mitigate, offset and prevent various impacts resulting from the proposed project during construction and operation.

1.2 Summary of impacts and mitigation measures during the construction phase

Possible effects related to the project	Effect characteristics				Reduction measures
	Intensity	Extent	Duration	Significance	
Climate	Weak	Punctual	Short	Minor	• Use machinery and vehicles in good working order • Ensure regular maintenance and technical inspections of construction machinery and vehicles
Floor	Weak	Punctual	Short	Minor	• Landscape excavated areas to allow native vegetation to grow back naturally. • Suspend activities during extreme precipitation events • Be sure to provide drainage channels and silt traps for all parts of the topsoil storage areas. • Be sure to reclaim areas with topsoil and revegetate them after activities are completed. • Use non-toxic and readily biodegradable chemicals on site when possible. • Install natural or synthetic liners under chemical storage tanks. • Level unpaved roads
Surface water	Weak	Local	Short	Minor	• Ensure that sediment and erosion control measures are installed. • Follow guidelines and procedures for immediate cleanup of spills (oil, fuel, chemicals). • Cover open stockpiles of building materials on site with tarps during storms to prevent building materials from being washed away.
Underground waters	Weak	Local	Short	Minor	

					• Install natural or synthetic liners under chemical storage tanks. • Compact earthworks as soon as the final surfaces are formed to prevent erosion, especially during the rainy season. • Be sure to grade gravel roads to maintain existing drainage patterns. • Ensure the protection of riparian areas • Take care to avoid the dumping of construction waste into waterways. • Ensure that chemicals and materials used on the job site are properly stored.
Vibration	Mean	Punctual	Mean	Mean	• Choose intrinsically silent equipment • Keep equipment speed as low as possible • Minimize idling time for pickup trucks and other equipment. • Limit working hours on site when possible • Ensure that all workers exposed to environmental noise are equipped with appropriate hearing protection and PPE. • Schedule noisy activities during the morning hours • Set up noise monitoring • Inform the local population when loud activities are planned. • Properly use and maintain mufflers that reduce vibration from construction machinery. • Use only well-maintained mechanical equipment on the job site.
air quality	Weak	Local	Short	Minor	• Ensure proper maintenance and repair of equipment and machinery. • Adopt a traffic management plan avoiding congested roads.

					• Ensure vehicles and machinery are turned off when not in use. • Hose down surfaces to control dust emissions • Avoid burning materials resulting from site clearance. • Make sure people working in dusty areas have PPE. • Ensure the use of high quality diesel for generators and vehicles. • Maintain a minimum traffic speed on the site and on access roads. • Make sure building materials and hazardous substances are handled properly. • Cover all vehicles transporting materials likely to generate excessive dust emissions. • Water surfaces regularly to control dust emissions.
Noise	Mean	Local	Short	Mean	• Use equipment with low noise emissions, as indicated by the manufacturers. • Properly adjust and maintain all vehicles and machinery. • Where possible, conduct construction activities during daylight hours to minimize disturbance to humans and wildlife. • Limit working hours to 7 a.m. - 7 p.m. when activities are very noisy.
Wildlife	Weak	Punctual	Short	Minor	• Avoid killing any wild animal during the work; • Avoid killing any wild animal caught during the work and keep it away from the site; • Do not expose food or attract prey to avoid attracting predators (snakes among others) to the site; • Physically protect construction sites against snakes; • Avoid the elimination of wild animals during the work; • Prevent any hunting activity • Be sure to report wildlife species of high conservation value.

					• Avoid any direct or indirect impact on areas of high ecological value. • Ensure sustainable management of solid and liquid waste from construction and operating activities. • Ensure that exterior lighting on construction sites is discreet and switched off when not needed. • If these measures described above are taken into account, they will partially reduce the impacts during the operation phase.
Flora	Weak	Punctual	Short	Minor	• Reduce the direct destruction of vegetation as much as possible by delimiting the surfaces of construction sites, barracks, access tracks and sites for the storage and extraction of construction materials to the strict minimum and by concentrating all activities within these sites. • Identify and clearly delineate the sites (marking them with ribbons, informing the workers) and the areas not to be damaged, considering their ecological value (denser vegetation, etc.). • Take all preventive measures to avoid damaging the surrounding environment, in particular agricultural land; • Protect the species present; • Carry out the adjustment and restoration of the premises after the work.
Odors	Weak	Punctual	Short	Minor	
Waste management	Weak	Punctual	Short	Mean	Identify all waste streams for effective management • Manage waste based on the three Rs (reduce, reuse, recycle) • Train all staff. • Minimize the production of waste that must be treated or disposed of. • Control placement of all construction waste (including spoil) in approved disposal sites (>300m from rivers,

					streams, lakes or wetlands). Deposit in authorized areas all waste, metals, used oils and surplus materials produced during construction, integrating systems for recycling and separation of materials. • Identify and delineate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). • Sign a contract for the recovery and treatment of hydrocarbon waste, filters, irons, batteries and other non-biodegradable waste with a company that has an environmental permit • Set up a concrete washing area for vehicles and machinery with an oil separator
Cultural properties	Weak	Punctual	Short	Minor	• Reinforce the presence of visual plant screens vis-à-vis the landscape of the area and the axes of communication of rural localities. • Reinforce the plantations at the level of the fence taking into account the orientations of the prevailing winds and constitute a diversified and coherent screen fitting into the landscape.
Cultural landscapes	Weak	Punctual	Short	Minor	
Health and safety of site workers and users	Mean	Local	Short	Mean	• provide staff with adequate Personal Protective Equipment (PPE) (helmets, safety shoes, boots, etc.) • provide the site with an infirmary and first aid equipment; • educate employees and local populations on hygiene, health and safety at work; • develop and apply a Health, Safety and Environment Plan (PHSE); • train employees in safety and risks and ensure compliance with the wearing of personal protective equipment (PPE) on construction sites; • put up signs near the work areas (approximately 100m).
Road traffic	Mean	Local	Short	Mean	• Sensitize the local populations as well as the project drivers on road safety • Put up signs to indicate the presence of the works.

Quality of life of the population	Mean	Local	Short	Mean	• Ensure sorting, collection and transport to the waste management center • Inform and raise awareness among the personnel and users of the industrial zone • Ensure the cleaning and removal of the site after the work.

2 Legal framework

2.1 International conventions relevant to the project

The international legal framework is composed of non-legally binding instruments and legally binding instruments. The legally non-binding instruments appear as documents announcing legal commitments of a conventional nature, while the legally binding instruments consist of the various international conventions.

Moreover, the place of international texts in the national legal system is specified by Title IX of the Constitution of 22 January 2001 devoted to international treaties. Article 98 specifies that "treaties or agreements duly ratified or approved have, as soon as they are published, an authority superior to that of laws, subject, for each agreement or treaty, to its application by the other party". Alongside international conventions, Senegal has participated in numerous international conferences relating to the environment during which non-binding acts have been adopted.

Senegal has signed and ratified most of the international conventions relating to the protection of the environment, the most relevant of which for this project are listed in the following table.

Text	Area of intervention	Relevance to the project
African Convention on the Protection of Nature and Natural Resources (Algiers Convention 1968, revised in Maputo in 2003)	This Convention aims at the conservation and rational use of soil, water, flora and fauna resources.	Project activities must not be a source of degradation of natural resources. If the impacts are unavoidable, they must be minimized as much as possible and compensated where necessary.
Montreal Protocol on Substances that Deplete the Ozone Layer	This protocol comes in addition to the previous Vienna Convention, it cites the substances causing the destruction of the ozone layer and calculation of the limit value. The use of the air conditioning system, refrigeration and cleaning in the different compartments makes the site eligible. Measures will be taken and implemented in the choice of equipment for the reduction of emissions related to equipment.	Project activities must not include substances that may cause the degradation or destruction of the ozone layer.
United Nations Convention on Desertification (1994)	It relates to the fight against desertification in countries seriously affected by drought and/or desertification, particularly in Africa.	The project activities could integrate reforestation actions and constitute a form of fight against desertification, in particular by defending and restoring the soil.
United Nations Framework Convention on Climate Change (UNFCCC1992) Kyoto Protocol to the UNFCCC (1997) Paris	They relate to the mitigation of greenhouse gas emissions and adaptation to the effects of climate change.	The project is concerned with the climate regime insofar as it can promote technologies aimed at reducing the emission

Text	Area of intervention	Relevance to the project
Agreement of December 12, 2015		of greenhouse gases in the perspective of carbon credits
Convention on Biological Diversity (1992)	Its objectives are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising from the use of genetic resources.	The project is concerned by this convention because the negative impacts of the project on biological diversity must be minimized.
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1972)	Conservation and wise use of wetlands	Project activities must not compromise the ecological balance of wetlands located in its area of influence.
Conventions of the International Labor Organization (ILO)	029: Forced Labor Convention 087: Convention on freedom of association and protection of the right to organize 089: Night Work (Women) Convention (No. 89) (Revised) 100: Convention (No. 100) on equal remuneration 105: Convention (No. 105) on the abolition of forced labor 111: Convention (No. 111) concerning discrimination (employment and occupation) 138: Convention (No. 138) on minimum age 102: Convention (No. 102) concerning social security (minimum standard) 135: Convention (No. 135) concerning workers' representatives 162: Convention (No. 162) on asbestos	The project must comply with ILO conventions
Rotterdam Convention	The objective of this Convention is to promote shared responsibility and cooperation between Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm.	Project activities must not include chemicals hazardous to human and animal health

Text	Area of intervention	Relevance to the project
Convention Concerning the Protection of the World Cultural and Natural Heritage 1972	Obligation to ensure the identification, protection, conservation, enhancement and transmission to future generations of the cultural and natural heritage located on its territory	The project activities must participate in the protection, conservation and enhancement of the natural and cultural heritage.
Bonn Convention on the Conservation of Migratory Species of Wild Animals (CMS, 1979)	Conservation of migratory species and their habitat	Project activities must not harm the conservation of migratory species and their habitats
Stockholm Convention on Persistent Organic Pollutants (2001)	It relates to the protection of human health and the environment against persistent organic pollutants.	Project activities must not promote the emission or discharge of persistent organic pollutants (dioxins, furans etc.).
ILO Convention No. 117 concerning the Basic Objectives and Standards of Social Policy ratified by Senegal on November 13, 1967	Improved living standards Employment of migrant workers Workers' compensation and related issues Non-discrimination with respect to race, colour, sex, creed, traditional group membership or trade union membership Education and vocational training	The project is concerned by this text because the social policy implemented as part of its execution must comply with the guidelines of convention 117
Convention No. 182 on the worst forms of child labor of June 17, 1999	Article 1. Each Member which ratifies this Convention shall take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labor as a matter of urgency. The term child applies to all persons under the age of 18.	The project must not employ children for work which, by its nature or the conditions in which it is carried out, is likely to harm their health or safety.

2.2 National legal framework

The national legal framework is marked by the existence of several texts which deal with environmental and social aspects.

2.2.1 Constitutional Law No. 2016-10 of April 5, 2016 amending the Constitution

Constitutional Law No. 2016-10 of April 5, 2016 amending the Constitution. The constitution of the republic promulgated on June 11, 1991 affirms the right of every individual to a healthy environment is guaranteed by article 25-2. This constitutionalization of the right to a healthy environment is likely to serve as a basis for any development policy in Senegal. This study is part of this logic of regulatory compliance to avoid any harm in the implementation of the cold chain infrastructure project on the human and biophysical environment.

2.2.2 Law No. 2001-01 of April 12, 2001 on the Environmental Code and its implementing decree

It is the main environmental management instrument in Senegal. It provides a framework for all sectors of the environment and provides the guiding principles for good management, compliance with which is necessary regardless of the area concerned. Decree no. 2001-282 of April 12, 2001 was issued pursuant to the legislative part of the Environmental Code.

Articles L48, L49, L50, L51, L52, L53 and L54 of the Act relate to environmental assessments.

The provisions relating to environmental assessment contained in the Environmental Code are presented below.

References	Regulated domain	Relevance to the project
Chapter V Article L 48	Any development project or activity likely to harm the environment, as well as policies, plans, programs, regional and sectoral studies must be subject to an environmental assessment. The environmental impact study is the procedure which makes it possible to examine the consequences, both beneficial and harmful, that a proposed development project or program will have on the environment and to ensure that these consequences are duly taken into account in the design of the project or programme.	The project, by carrying out an in-depth environmental impact study prior to its implementation, complies with the provisions of the Code in terms of environmental and social assessment.
Article L 49	The impact study is part of an already existing authorization, approval or concession granting procedure. The impact study is prepared at the promoter's expense and submitted by him to the ministry responsible for the environment, which issues a certificate of authorization after technical advice from the Department of the Environment and Classified Establishments.	
Section L94	Any person who has: • Carried out a project referred to in article L 50 without an impact study; • Carried out a project that does not comply with the criteria, standards and measures set out in the impact study; • Opposes the performance of the checks and analyzes provided for in this law.	
Article R38	Impact studies are carried out prior to any administrative authorization required to carry out the planned activity.	

To ensure effective protection and management of the environment, the first paragraph of Article L.48 provides "Any development project or activity likely to harm the environment, as well as policies, plans, programmes, regional and sectoral studies shall be subject to an environmental assessment (EA)". The elements of environmental assessment are: Environmental Impact Assessment (EIA), Strategic Environmental Assessment and Environmental Audit.

The project will trigger all SO.1, SO.4 and SO.5 Operational Safeguards and is classified under Category 1 of the Bank's Environmental and Social Assessment Procedures (ESAP). It is in this context that the promoter of the Agropole Center project must produce an Environmental and Social Management Framework (ESMF) in accordance with the Integrated Safeguard System (ISS)

2.2.3 Other laws framing national environmental and social legislation

THEME	LEGAL TEXTS	REFERENCES	OBLIGATIONS	APPLICATION TO STUDY
ENVIRONMENT				
Study framework	**Law No. 2001-01 of January 15, 2001 on the Environmental Code**	**CHAPTER V Impact study ARTICLE L 48: Paragraph 1**	Any development project or activity likely to harm the environment, as well as policies, plans, programs, regional and sectoral studies must be subject to an environmental assessment.	This environmental study complies with this regulatory provision
ICPE	**Decree no. 2001-282 of April 12, 2001 implementing the environment code**	**ARTICLE R3:**	"Installations classified for the protection of the environment must, as the case may be, be the subject of a request for authorization addressed to the Minister in charge of the environment, or be the subject of a declaration. »	Any classified installation must first be the subject of a request for authorization from the relevant competent authority.
Waste	**Law No. 2001-01 of January 15, 2001 on the Environmental Code**	**Article L 30**	"Waste must be disposed of or recycled in an environmentally sound manner in order to eliminate or reduce its harmful effects on human health, on natural resources, fauna and flora or the quality of the environment. The provisions of this chapter apply to all categories of waste, including biomedical waste. »	The study should identify the company's waste management system and make recommendations, if necessary, for greater efficiency.
		Article L 31	"Any person who produces or holds waste must ensure its own disposal or recycling or have it disposed of or recycled by companies approved by the Ministry responsible for the environment. Failing this, it must hand over this waste to the local community or to any company	

			approved by the State for waste management. This company, or the local community itself, can sign contracts with the producers or holders of waste for their disposal or recycling. Recycling must always be done according to the standards in force in Senegal. »	
		Article L 33	"Waste disposal includes the collection, transport, storage and treatment operations necessary for the recovery of useful materials or energy, or any deposit or discharge in the appropriate places, any other deposit in conditions to avoid the nuisances mentioned in this law. »	
	Law law n° 2020-04 of January 08, 2020 relating to the prevention and reduction of the environmental impact of plastic products	**Section 4**	The production, import, holding for sale, offering for sale, sale, making available to the user, use, in any form whatsoever, of single-use plastic products or disposable plastic products the products made or manufactured from the following plastic materials: - cups, glasses or glass lids; - cutlery and plates; - straws and stir sticks for drinks; - sachets intended and used to package water or any other beverage, alcoholic or not, for marketing purposes.	The company must avoid all use of disposable plastic products in accordance with the regulations.
		Section 5	Checkout plastic bags, with or without handles, with or without straps, are prohibited, regardless of their thickness. The ban does not apply to plastic bags intended for use at points of sale to package foodstuffs in order to protect them, to allow them to be handled or transported from the producer or seller to the consumer and to ensure their presentation.	
	Order No. 009311 of 05/10/2007 on	**Article 3 Paragraph 1**	"It is prohibited to deposit or let waste oils flow, in any place whatsoever where they may pollute the environment,	The promoter must ensure the management

	the management of used oils		in particular in or on the ground, in surface water or underground water, in sewers, pipelines or collectors; »	of used oils to avoid any form of pollution
		Section 6	"Holders must: - either hand over their used oils to approved collectors; - either ensure the transport of used oils themselves with a view to handing them over to approved eliminators in accordance with Article 8; - or ensure the disposal themselves waste oils that they produce under conditions that comply with the provisions of this order after having obtained approval as provided for in article 9."	
Rubble: Landscape/Overgrown public road	**DECREE n° 2009-1450 of December 30, 2009 on the regulatory part of the Town Planning Code.**	**Article R 379.**	The agents in charge of the fight against congestion are authorized to remove or remove, without delay or at the expiry of the time granted, the obstructions and nuisances of any kind which are on the paths, sidewalks, passages waterways, bridges and watercourses, by the persons who caused them, or on their refusal or negligence, by any other person they authorize for this purpose, at the expense of the person in default. It is forbidden to deposit on the public highway or in unenclosed places, scrap metal, rubble and wrecks of all kinds.	The developer must ensure that the rubble is managed in such a way as to avoid any encroachment or nuisance on private or public areas.
		Article R 380.	In the event of encroachment on the right-of-way of a road, the State or the local authority concerned may proceed with the removal and deposit of the materials in a site specially laid out for this purpose or in any other site where the conditions of preservation of these materials are met. In the case of discarded goods that have been placed on the public highway, if it becomes necessary to rent a building or a warehouse in order to preserve the objects, the cost of the operation includes the actual costs rental	

			and the labor required to remove objects that encroach on the public road.	
Atmospheric discharges	**Law No. 2001-01 of January 15, 2001 on the Environmental Code**	**Article L 78**	"In order to avoid atmospheric pollution, buildings, agricultural, industrial, commercial or craft establishments, vehicles or other movable objects owned, operated or held by any natural or legal person, are built, operated or used in such a way as to meet the standards techniques in force or taken pursuant to this law. They are all subject to a general obligation to prevent and reduce harmful impacts on the atmosphere"	The study should verify the sources of atmospheric pollution, verify their level of compliance with the standards in force, the measures taken to reduce nuisances.
	Decree n° 2001 – 282 of April 12, 2001 implementing the environment code	**Article R 72**	"When the polluting emissions from the facilities can cause, due to meteorological conditions observed or foreseeable in the short term, an increase in the level of atmospheric pollution constituting a threat to people or property, the operators of these facilities must implement all useful measures to eliminate or reduce their polluting emissions. »	The study should identify the facilities that are sources of atmospheric pollution, the discharge conditions and possibly carry out a dispersion model based on meteorological parameters.
	Standards N05-062	**Chapter II 1.1 Capture and disposal of emissions**	"Emissions are captured as completely and as close to their source as possible, and vented in such a way that no excessive emissions result. -The operator must take all the necessary measures in the design and operation of the installations to reduce air pollution at the source. exhaust duct-Devices indicating the direction and speed, if necessary, of the wind must be installed near installations liable to emit dangerous substances into the atmosphere in the event of a malfunction. »	The study should verify compliance with the standard for a reduction in atmospheric emissions at source.

		L-spot	Construction site "Emissions from construction sites must be limited, in particular by limiting emissions from the machines and devices used and by using appropriate operating procedures, insofar as technology and operation permit, and where this is economically bearable, the nature, size and location of the site as well as the duration of the works having to be taken into account. The competent authority shall issue directives on this subject. »	
Floor	**Law No. 2013-10 of December 28, 2013 on the General Code of Local Authorities Title IV: local administration and local services Chapter 1: Budget of local authorities Sub-section 2: operating revenue of the municipality**	**"Article 195. Paragraph 1**	"- The operating revenue of the municipality is as follows: 6. tax revenue which includes: a) The products of the direct taxes below, collected on the territory of the municipality: tax representative of the tax on the minimum tax; - The business license contribution and the related additional tax; - The land tax on built properties; - The land tax on unbuilt properties; - The land surcharge on insufficiently built properties; License contribution. »	The promoter is required to approach the municipality in order to see the terms of payment of taxes.
	Law No. 2013-10 of December 28, 2013 on the General Code of Local Authorities First Title: fundamental principles and procedures for the transfer of powers	**Section 278.**	**"-** The local communities regulate, by deliberations, the affairs of their competence. They contribute with the State, to the administration and regional planning, to economic, educational, social, health, cultural and scientific development as well as to the protection and enhancement of the environment and to improving the living environment. The State exercises the missions of sovereignty, the control of the legality of the acts of the local communities under the conditions fixed by the law, ensures the coordination of the actions of development and	

			guarantees the cohesion and the national solidarity as well as the integrity of the territory "	
Waste	**Law No. 2001-01 of January 15, 2001 on the Environmental Code**	**Article L 63**	“Any direct or indirect discharges, flows, rejections, deposits of any kind likely to cause or increase the pollution of continental waters and/or sea waters within the territorial limits are prohibited. »	-The study should verify the sources of discharges that may affect surface or groundwater in any way, and verify the characteristics of these discharges. -The study must identify the different types of waste water, the treatment and evacuation devices and finally assess their compliance with the provisions of this code.
	Water Code Law No. 81-13 of March 4, 1981 on the Water Code	**Section 49**	"No spillage, flow, rejection, direct or indirect deposit into an underground water table or a watercourse likely to modify its physical characteristics, including thermal and radio-atomic, chemical, biological or bacteriological characteristics, may be made without authorization granted, after investigation, by the Ministers in charge of Hydraulics and Sanitation. »	
	Law No. 2009-24 of July 8, 2009 on the Sanitation Code	**Article L 3**	"Any direct or indirect spill, flow, deposit, jet, burial and immersion of liquid waste, of domestic and industrial origins in the natural environment must be subject to prior depollution under the conditions set by the texts in force . . »	
		Article L 4	“The sources of pollution are regulated by the legal provisions in force, in particular, this code, the environment code, the water code and the hygiene code. Sources of pollution are required to submit to checks by sworn agents under these various codes or their delegates. »	
		Article L 13	"The discharge of untreated effluents of domestic origin, excreta and faecal sludge into gutters, open rainwater channels or closed rainwater drains as well as on the surface of the soil natural or developed, is prohibited throughout the national territory.	

			Likewise, the discharge of untreated domestic effluents into streams, lakes, ponds and the sea is prohibited.	
		Article L 15	“Any place that can produce domestic wastewater must be equipped with a drainage system for this water established in accordance with the provisions of this Code, its implementing texts and other texts in force. »	
		Section L29	"It is strictly forbidden to discharge into public sewage collectors: - Spring water, drainage and ditches, - The contents of watertight or accumulation pits, - The contents of septic tanks and all-water pits , - Household waste, plastic waste, - Hydrocarbons, - Radioactive substances, - Paint residues, - Used oils. - Products resulting from the cleaning of sanitation works of the collective or individual type, - Bodies and solid materials, harmful or flammable liquids or gaseous products, - Substances such as sludge, sand, rubble, glues, tars, oils, etc., which, by their nature, can compromise the proper functioning of the sewers, damage the pipes, endanger the personnel in charge of their maintenance or disrupt the normal operation of the treatment plants, the water temperature above 30°C. »	
		Article L 52	“When a public sewer is accessible less than sixty meters from a place producing effluents of industrial origin, the evacuation device of this place must be connected to the public sewer under the conditions set by the Code of the	

			'Environment and by this code and its application texts. »	
		Section L56	The contents of polluting substances in the effluent discharged into the public sewer network are set on the basis of the values retained by the texts in force, in particular the environment code and the Senegalese standard NS 05-061. However, different values may be retained by the service responsible for sanitation depending on the type of industry and the sensitivity of the receiving environment to pollution.	
	Senegalese Standards NS 05-061 Relating to discharge standards in relation to wastewater	**Chapter 1-Point. 5.1**	"Any discharge of liquid effluents causing stagnation, inconvenience for the neighborhood, or pollution of surface, underground or marine waters is prohibited throughout the national territory. »	
	Construction Code Chapter 1: General Rules Section 2: General Hygiene Provisions Applicable	**Article L3**	"Any domestic wastewater and runoff water evacuation system must be equipped with a device established in accordance with the provisions of the Town Planning Code and the Hygiene Code. The maintenance of the works, in particular up to the upstream of the connection box, if there is one, is the responsibility of the building owners. The installation of a device preventing the rise of odors is mandatory. »	The company will have during the construction to set up a good management of waste water
Noise	**Law No. 2001-01 of January 15, 2001 on the**	**Article L 84**	"Noise emissions likely to harm human health, constitute an excessive nuisance for the neighborhood or harm the environment are prohibited. The natural or legal persons at the origin of these broadcasts must implement all the necessary measures to suppress them. When the	The study should identify all sources of noise pollution, assess the level of pollution at the property boundary and

	Environmental Code		emergency justifies it, the Minister in charge of the environment, in conjunction with the Minister of the Interior and the Ministry of the Armed Forces, must take all executory measures intended ex officio to put an end to the disturbance. »	their compliance with regulations. In addition, it must recommend that the company favor less noisy machines and ensure compliance with the wearing of PPE.
	Law No. 2001 - 282 Decree implementing the environmental code	**Article R 84**	"The maximum noise thresholds not to be exceeded without exposing the human body to dangerous consequences are fifty to sixty decibels during the day and forty decibels at night. However, the diversity of sources of noise pollution (classified installation, building site, passage of a jet plane, siren, automobile traffic, the neighbour's radio or television, etc.) makes the regulations specific. »	
	Decree No. 2006-1252 of November 15, 2006 setting the minimum requirements for the prevention of certain physical environmental factors	**Section 13**	"The level of exposure to noise must be as low as possible and remain within an intensity limit that does not risk damaging the health of workers, in particular their hearing. To achieve this result, the employer must, in particular: - favor less noisy manufacturing processes; - reduce at source the noise emitted by professional equipment and, in particular, machines; - isolate, in specific rooms, noisy equipment whose operation requires only a limited number of workers; - avoid spreading noise from one workshop to another; - arrange the work premises so as to reduce the reverberation of noise on the glass walls or ceilings; - organize the work so that the employees are away from the noise. »	
		Section 14	"The daily noise exposure level, that is to say the value of the average noise level received by a worker throughout the duration of his working day, must not exceed 85 A-weighted decibels. technically possible to reduce the level of daily noise exposure below 85 db (A), the employer	

			must provide employees with suitable personal protective equipment. He must ensure that they are actually used. This limit of 85 db (A), required for the use of personal protective equipment, can be lowered depending on the nature of the work, intellectual or otherwise, requiring concentration. »	

THEME	LEGAL TEXTS	REFERENCES	OBLIGATIONS	APPLICATION TO STUDY
HEALTH AND SAFETY AT WORK				
General measures	**Law No. 97-17 of December 1, 1997 on the Labor Code**	**Article L 170**	"The Labor and Social Security Inspector monitors the employer's compliance with health and safety provisions. When it finds a breach of the standards or prescriptions thus enacted, it gives formal notice to the employer to comply with them. In addition, when there are working conditions hazardous to the safety	The study should suggest that the employer adopt compliant facilities and take measures that
			or the health of the workers, not covered by the decrees issued pursuant to Article L. 168, the employer is given formal notice by the Labor and Social Security Inspector to remedy them. The formal notice must be made in writing on the employer's register or by registered letter with acknowledgment of receipt. It is dated and signed. It specifies the nature of the shortcomings or dangers noted and sets the deadline within which they must have disappeared. This period may not be less than 4 clear days except in an emergency indicated by the Labor and Social Security Inspector. Under the conditions and according to the procedures set by the Social Security Code, the employer is	ensure the safety of personnel. Provide personnel with personal protective equipment

			required to notify the Labor and Social Security Inspector of any workplace accident or any occupational disease observed in the company. This notice is given without delay by any emergency means in the event of a fatal accident. »	
		Article L 171	"The employer must ensure that the workplaces, machines, materials, substances and work processes placed under his control do not pose a risk to the health and safety of workers. In this respect, prevention is ensured: • 1° by technical measures applied to new installations or new processes during their design or implementation, or by technical additions made to existing installations or processes; • 2° by taking measures to organize occupational medicine ; • 3° by work organization measures. »	
		Article L 172	"When the measures taken under Article 171 are not sufficient to guarantee the safety or health of workers, individual protection measures against occupational risks must be implemented. When these individual protection measures require the worker to use appropriate equipment, the latter is provided and maintained by the employer. In this case, no worker must be admitted to his workstation without his personal protective equipment. »	
		Article L 174	"The use of processes, substances, machines or materials specified by the regulations resulting in the exposure of workers to occupational risks in the workplace, must be brought to the attention of the Labor and Safety Inspector in writing. social. »	
		Section 175	"Workplaces must be subject to regular surveillance under the conditions and in accordance with the procedures laid down by the administrative authority, with a view in particular to verifying the safety of equipment and installations as well as	

			monitoring the health risks on work places. »	
		Article L 177	"All workers: . 1° must be fully informed of the occupational risks existing in the workplace; 2° must receive adequate instructions as to the means available and the conduct to adopt to prevent these risks and protect themselves against them. This information and instructions must be brought to the attention of the workers under conditions and in a form that allows each of them to have a good minimum general training in health and safety . »	
		Article L.185	Employers are required to organize a work safety service and a health and safety committee. The safety service assists and advises the employer and, where appropriate, the workers or their representatives, in the development and implementation of a health and safety program at work. This service can be for a single company or common to several or even be provided by an external organization. Worker safety representatives and a joint health and safety committee cooperate in the development of this programme. The organization, missions, operation and means of action of the occupational safety services, as well as the methods of appointment and intervention of safety delegates and joint health and safety committees are set by decree.	The creation of a health and safety committee at work is to be considered on the basis of the conditions set by this code.
	Law No. 83-71 of July 05, 1983 on the hygiene code	**Article L.35**	"The personnel of factories and other industrial enterprises must be subject to periodic medical examinations in accordance with the regulations in force. »	Staff must undergo a medical examination before hiring
		Article L.49	"Without prejudice to the application of the rules specific to each profession, persons called upon by reason of their employment to handle foodstuffs, both during their collection, preparation, treatment, transformation, packaging, packaging,	The sponsor must ensure the hygiene and cleanliness of products intended for

			transport, storage, and during their exhibition, sale and distribution are bound to the greatest cleanliness of body and clothing under the responsibility of the employer. They are subject to periodic medical examinations in accordance with the regulations in force. In food preparation workshops, smoking is prohibited. The handling of foodstuffs is prohibited for people likely to contaminate them, in particular those suffering from mucocutaneous, respiratory or intestinal infections. Any subject suffering from such a condition noted by a clinical or bacteriological examination must be excluded until complete recovery, confirmed by medical certificate. The staff must use the sanitary facilities made available to them: sufficient number of changing rooms, lavatories without direct communication with the premises and annexes. Washbasins, soap and hand towels are placed next to the lavatories and close to the workplaces. »	human or animal consumption
	Law No. 94-63 of August 22, 1994 on prices, competition and economic litigation	**Section 23**	**“** All economic operators are required to respect the rules of free competition so that competition is healthy and fair. All practices tending to obstruct in various forms the positive evolution of the laws of the market are therefore considered as offences. So-called anti-competitive practices may be individual or collective in nature as defined in the provisions below. »	The company is required to respect the rules of free competition as required by the regulations
		Section 24	**“** Are prohibited, subject to specific legislative and regulatory provisions, any action, agreement, combination, express or tacit agreement in any form and for any reason whatsoever, having as their object or which may have the effect of preventing, restricting or to distort the free play of competition, in particular those: - hindering the lowering of cost, sale or resale prices; - favoring	

			the artificial increase or decrease in prices; - hindering technical progress; - limiting the exercise of free competition.	
	Decree No. 68-507 of May 7, 1968, regulating the control of products intended for human or animal consumption	**Section 6**	Containers or packaging containing products intended for human or animal consumption held for sale , offered for sale or sold, must permanently bear, either by labeling or by direct printing, the following particulars which must be written French language. a) The name and address of the manufacturer (or company name); b) The name of the product; c) The brand of the product (if any); d) The net weight (or gross, with indication of the tare) or the capacity of the container; e) The manufacturing and sale authorization number, the name and address of the manufacturer may be replaced by those of the retailer or a registered trademark, subject to the affixing of a conventional indication decreed by the Fraud Prevention Service; f) With regard only to animal feed, the indication of the products entering into their composition, and the guaranteed levels of protein, fat, cellulose, vitamins and minerals, as well as the user manual.	In order to preserve the quality of the product, the company must take the necessary measures to meet the conditions laid down by the regulations.
	Decree n°2006 – 1251 of 15/11/2006 relating to work equipment	**Art. 25.**	Each machine must be equipped with as many emergency stop devices as necessary. At a minimum, an emergency stop is required. These devices must make it possible to eliminate the dangerous situations which risk or are in the process of occurring, by stopping the machine by optimal deceleration of its moving parts. The emergency stop order must take priority over all other orders. .	All equipment must meet the required standards in terms of safety
	Decree n°2006 – 1251 of 15/11/2006	**Art. 26.**	Emergency stop devices must be clearly identifiable and easily accessible. They should be an eye-catching red or yellow color. Machines for which an emergency stop device could not reduce the time required to obtain a normal stop, portable machines	

	relating to work equipment		and hand-guided machines are not subject to the provisions of the preceding paragraph.	
		Art. 41	Work equipment must be properly maintained, with the aim, in particular, of guaranteeing its safe operation. Each piece of work equipment must be provided with a maintenance log on which are mentioned the details and dates of the maintenance operations to which it has been subject, as well as the names and qualifications of the persons who carried them out. These notebooks are kept at the disposal of the labor inspector.	
	Decree n°2006 – 1251 of 15/11/2006 relating to work equipment	**Section 43**	"Visits are carried out by qualified personnel appointed by the employer. The results and dates of these inspections, as well as the names and qualifications of the people who carried them out, are mentioned in the safety register with which each of this work equipment is equipped. »« The safety registers are made available to the Labor Inspector. The Labor Inspector may require the employer to submit to the aforementioned visits any other work equipment for which he deems these quarterly checks necessary. »	The company must have a security register.
	Decree No. 2006 – 1252 of 15/11/2006 setting the minimum requirements for the prevention of certain physical environmental factors	**Section 4**	"The lighting of work areas must be designed and produced in such a way that the level of lighting is adapted to the nature and precision of the work to be carried out and that it does not cause any visual fatigue and resulting ailments. In particular: - the lighting values of the work areas which are contiguous to them must be close. In the same room, the value of the illumination must be equal, at least, to one fifth of the value of the illumination of the work area; - the quality of the lighting must allow correct perception of	The company will have to take all its measures to put its employees in very good working conditions

			colors and shapes, in relation to the activity carried out; - workers must be protected against glare phenomena due, for example, to the sun, to light sources artificial, to surfaces with high luminance or to excessive luminance ratios between neighboring surfaces.- light fluctuation phenomena: stroboscopic effects, which are due in particular to the poor condition or poor maintenance of certain lamps, must be eliminated;- workstations must be shielded from direct sunlight."	
		Section 10	"The ambient temperature must be at an acceptable level; it must be compatible with the health of the employees and not cause them discomfort, taking into account, in particular, the physical constraints that their work requires. It is monitored by thermometers installed in the workplace . »	
		Art. 12.	"Employees who work in cold environments must be equipped with the means to resist the cold; the employer provides them with suitable protective equipment, in particular warm clothing, hats, earmuffs, gloves and shoes. »	The employer must provide workers with cold protection equipment and require them to wear
	Decree n°2006 – 1254 of 15/11/2006 relating to the manual handling of loads	**First article**	"This decree applies to employers, workers and establishments falling within the scope of the Labor Code. »	It shall be recommended to the factory to avoid carrying excessive load in accordance with this provision.
		Section 8	Article 8 sets the maximum authorized weights according to gender (male/female, age) and for pregnant women. Within the meaning of this article, it is forbidden for a single worker (over 18 years old) to carry, push, drag a load greater than 50 kg. For women this load is 15 kg, and for pregnant women 5 kg exceptionally »	

	Decree No. 2006-1261 of November 15, 2006 laying down general health and safety measures in establishments of all kinds	**Section 12**	"The employer must provide, free of charge, to each beneficiary, two complete work clothes per year, adapted to the size of the latter. The first outfit is provided within fifteen days of hiring. »	The employer must provide its employees with the necessary amenities (changing rooms, toilets) to enable them to carry out their work in compliance with health and safety measures.
		Section 13	"The employer must provide each worker with the appropriate means, in particular soap and detergents, to keep his work clothes clean. Workers assigned to or near work equipment must wear appropriate clothing. »	
		Section 15	"The employer must make changing rooms available to his staff, when all or part of them are normally required to change their clothing for the performance of their work. Changing rooms must be sufficiently spacious and properly ventilated. The clothes placed there must be able to dry there. Their floors and walls should be easy to clean. They must be kept in a constant state of cleanliness and cleaned at least once a day. Separate changing rooms must be provided for male and female workers. Changing rooms will be provided with a sufficient number of seats, such as benches, chairs, stools and individual lockers."	Men's locker rooms and toilets must be separate from women's.
		Section 19	"It is forbidden to let workers take their meals at their workstation. In establishments where at least fifteen workers wish to bring their meals and eat them on site, the employer must provide them with a canteen presenting all the guarantees of hygiene. This room must not communicate directly with the work rooms. It must be spacious enough and properly ventilated. It must be effectively insulated from excessive heat due to solar radiation. The temperature must be suitable. Its floors and walls must be easy to clean. »	

		Section 29 :	Any employer who accommodates, inside or outside the limits of the establishment, one or more workers who do not live with their family, must declare this to the Labor Inspectorate within the month following the opening of accommodation. This declaration must specify: the number and sex of the employees accommodated; the plan of the accommodation and sanitary facilities: toilets, sinks, showers, canteens, kitchens, with indications of their surface area and volume.	The employer must declare the employees accommodated inside or outside the factory.
Organization / Planning of OHS measures	**Law No. 2001-01 of January 15, 2001 on the Environmental Code**	**Article L 56**	"The operator of any classified installation subject to authorization is required to draw up its own internal operation plan (POI) to ensure that the competent authorities and neighboring populations are alerted in the event of a disaster or the threat of a disaster, the evacuation of personnel and the means of circumscribing the causes of the disaster. »	The study must identify all the sources of danger, assess the level of risk and their compliance with the regulations.
	Interministerial Order No. 04862/MEPN/MEMI /M. Int of 14 July 1999 on POIs in classified establishments	**Section 5**	"The POI is established on the basis of a study of the dangers of the establishment, the analysis of the various possible accident scenarios and their most penalizing consequences. »	
		Section 9	"POI application exercises must be carried out at least twice a year to check its reliability, in order to fill, if necessary, any shortcomings and also to train the personnel of the establishment and allow it to be updated in a continuous and regular. »	
	Interministerial Order No. 5945 M.INT-PC of 14 May 1969 establishing safety	**Section 1**	"The safety rules against the risk of fire and panic in establishments open to the public, provided for in article 189 of the Town Planning Code (regulatory part) are established by the safety regulations annexed to this order . . »	

	rules against the risk of fire and panic in establishments open to the public	**Section 11**	"The employer takes the appropriate measures so that the workers of the external establishments working in his establishment receive adequate information concerning the prevention of occupational risks. »	
Occupational Medicine	**Decree No. 2006-1258 of November 15, 2006 setting the missions and rules for the organization and operation of occupational medicine services**	**Section 29**	"In each workshop, site or service where dangerous work is carried out, a member of staff must have received the necessary instruction to give first aid in the event of an emergency. When the activity of an establishment includes day and night work and in the absence of a nurse, or when their number, calculated in accordance with the provisions of Article 27 above, does not allow To ensure the permanent presence of this staff, the employer, after obtaining the opinion of the occupational physician, takes the necessary measures to provide first aid in the event of an accident. These provisions are recorded in a document made available to the competent Labor and Social Security Inspector. »	The employer must carry out medical visits according to the defined frequencies, he is also required to ensure the health of his workers at all times.
		Section 38	"All employees undergo a medical examination before hiring or, at the latest, before the end of the trial period following their hiring. The worker subject to special medical surveillance defined in article 41 of this decree must benefit from this examination before being hired. The purpose of the medical examination is to: . to ensure that the worker is medically fit for the post to which the head of the establishment plans to perform;. to find out if the employee is not suffering from a dangerous condition for other workers;. possibly proposing adaptations to the position or assignment to other positions. »	
		Section 40	"All employees must have a medical examination at least once a year, in order to ensure that they are still fit for the job they occupy.	

			This examination includes at least:. a clinical examination; a chest X-ray examination, by a radiologist, and a urine test for albumin and sugar. »	

3 Current environmental baseline

3.1 Introduction

To be relevant, the examination of the project study area requires the consideration of several areas/spaces of influence taking into account the direct and induced effects.

The analysis of the initial state of the environment will be done taking into account one space or another depending on the relevance of the angle of analysis.

The area of influence of the project delimited within the framework of this study takes into account the Integrated Industrial Platform of Diamniadio .

Figure 1: Delimitation of the project's area of influence

3.2 Climate

The project site belongs to the Sahelian but coastal climatic domain, determined by its own and specific parameters of wind, precipitation, temperature, relative humidity and insolation. Compared to the rest of the country, this area enjoys a fairly mild climate due to its privileged geographical position on the western side of the Atlantic Ocean. Thus, it is subject to the oceanic influences of the Azores anticyclone which subjects the Senegalese coast to cool currents over a good part of the year from November to May (7 months). The relatively hot rainy season extends from June to October with temperatures around 27° C and a variable peak in rainfall between August and September.

Parameters climatics _	Chronologic series _	Average _ _ of the series _ _ _
Annual rain (mm) _ _ _	1960 - 2016	411.6
Temperature meade (°c)	1960 - 2016	24.6
Relative Humiditer (%)	1960 - 2016	75.6
Insolation (Hur) _	1960 - 2016	8.1
Speed (m/s) _	1960 - 2016	4.77
Dominant management _ _ _ _ _ _ _ _ _ _ _ wind _ _ _ _	1960 - 2016	N to NE

3.2.1 Directions and speeds of the wind and importance of the intertropical front on the climate

The wind regime is characterized by a seasonal variation of the dominant directions with north winds or maritime trade winds (November to May) and northeast winds or harmattan. From the April-May period, the monsoon wind sets in. The average monthly speeds vary between 2.9m/s during the month of September and 5.3m/s during the month of March.

The monsoon winds that blow during the rainy season are trade winds that come from the Saint Helena anticyclone and enter the moisture-laden country. They are characterized by a low thermal amplitude but with temperatures generally higher than those of the maritime trade winds. Monsoon winds blow in a westerly or southwesterly direction due to seasonal variation in speed and prevailing directions. These winds bring rain.

The maritime trade winds coming from the Azores anticyclone strongly influences the region of

Dakar where it remains for almost the whole year. From north to northeast, the maritime trade wind is a constantly humid wind and is marked by a low thermal amplitude. Its humidity can be deposited in the form of dew, especially during the night.

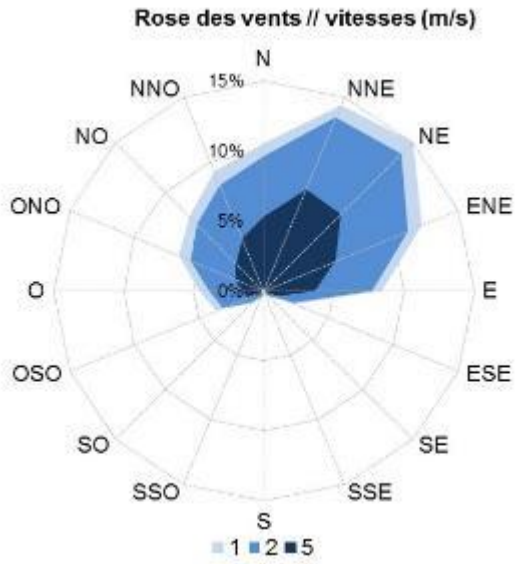
The region is also influenced by the Libyan anticyclone which directs the harmattan, a hot, dry wind blowing northeast to southwest from March to April. This hot, dry wind that crosses the Sahara brings large amounts of dust. Exposure to these particles could contribute to the rise in the prevalence of subjects suffering from broncho-pulmonary diseases (asthma, chronic bronchitis).

Based on the aeraulic study carried out as part of the construction of the United Nations City located in the urban center of Diamniadio (SETEC, February 2018) the wind direction is generally North-East, however, we will be able to observe northwesterly winds in summer.

The median air speed is 4.8 m/s (~17 km/h).

Figure 2: Distribution diagram of wind speeds in frequency

Figure 3: Wind rose



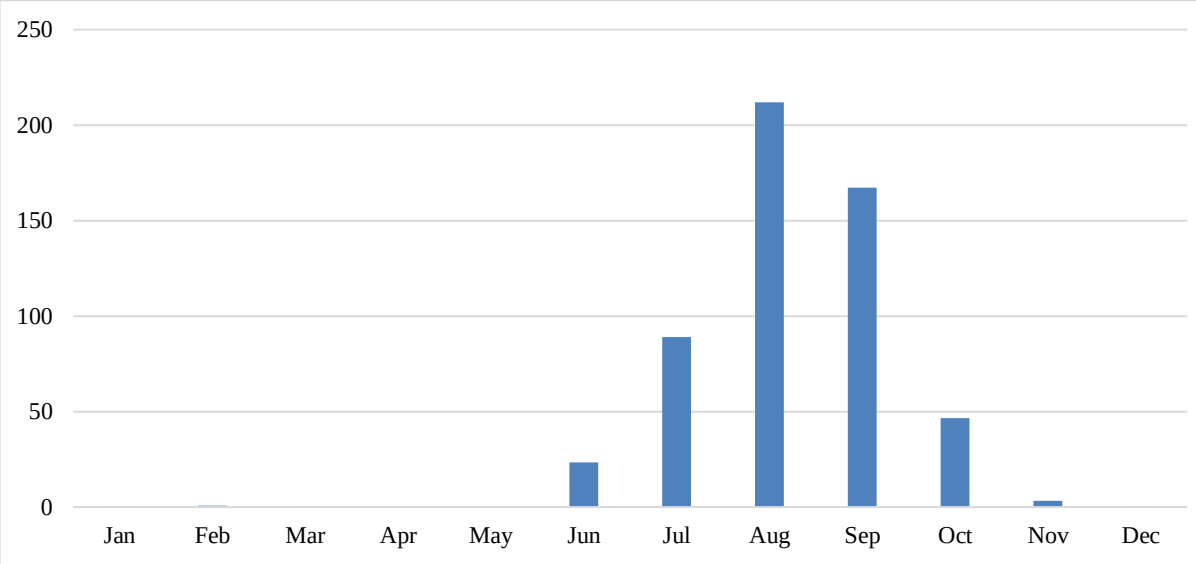
Winds can transport dust, smoke, gases and odors emitted by road traffic and the various classified installations erected on the PUD upstream. Certain substances contained in these emissions (SO2, CO, NOx, NH3, etc.) will affect the air quality of the surrounding environment (housing and service areas). This degradation of air quality may affect the health and well-being of populations residing in the PUD.

3.2.2 Rainfall

The average annual rainfall in the area recorded by ANACIM at the Dakar Yoff station between 1960 and 2016 shows interannual fluctuations with the benchmark years 1967 -1969 and 2012 - 2015 where more than 600 mm of rainfall is recorded. The minimum having been recorded in 1972 and 2014 with nearly 160 mm. The drought of the 1970s pushed migrants to occupy the lowlands that once served as a place to receive runoff water. In addition, the evacuation of wastewater is becoming a major problem for the populations of the Dakar region with the recharge of the groundwater table. The latter is very exposed to pollution. Consequently, rainfall has direct impacts on the sanitation systems in place.

The monthly distribution of precipitation at the synoptic station of Dakar Yoff shows two main seasons: a short rainy season which lasts 3 to 4 months (July-October) and a long dry season of 9 months (Ref. Figure). Rainfall is linked to monsoon flows which generally blow from May to October. However, rains can be recorded during the winter period. They are due to invasions of polar air.

Figure 4: Evolution of monthly precipitation



Source: World Bank

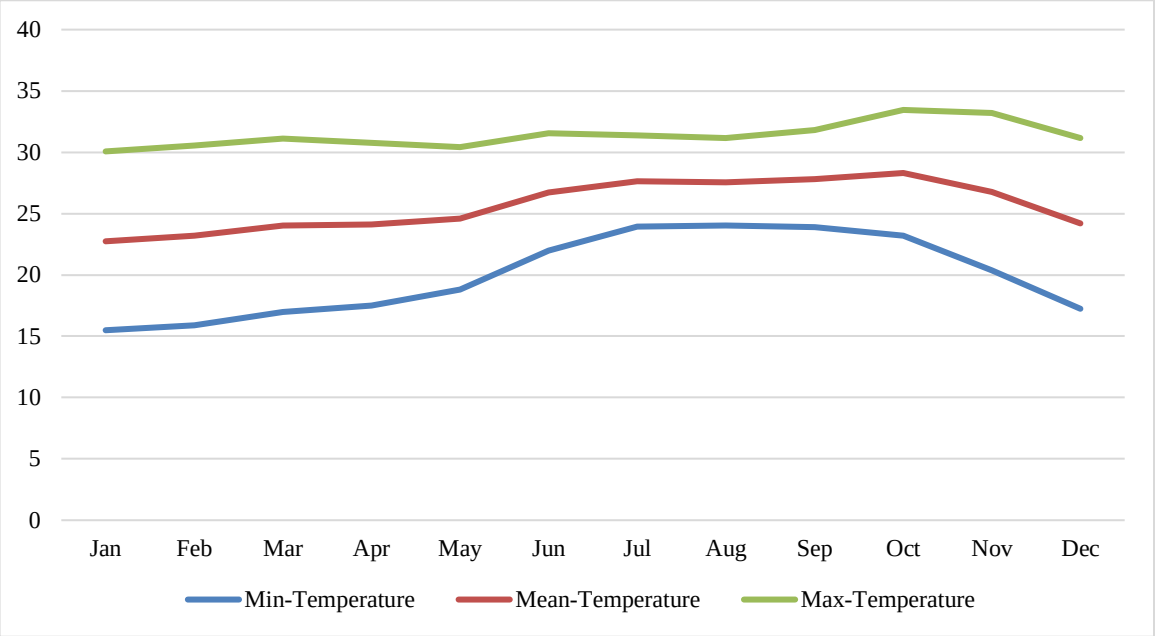
This figure above shows the existence of 11 rainy months and one month (April) during which there is no precipitation. This allows us to distinguish: winter precipitation occurring between November and March due to invasions of polar air called "Heug" rains or mango rains for a total of 2.6 mm or 0.63% of the annual total . Rainfall in winter, that is to say during the rainy season between May and October for a total of 409 mm or 99.3% of the annual total. August is the rainiest month with 171.2 mm and represents 44.44 mm of winter rainfall. It is in August and September that we receive the largest quantities of precipitated water. These two months total 309.9 mm or 75.2% of the total wintering. The average annual precipitation is 411.6 mm.

3.2.3 Temperature

The influence of the maritime trade wind, a constantly humid wind, is felt during the months of December to May. During this period, temperatures are relatively low and oscillate between 22° C and 24° C. On the other hand, the period from June to November remains the hottest with average temperatures varying between 26 and 28° C.

The graph below, produced with data obtained from the World Bank, shows the evolution of the monthly average temperature over the period 1990-2020.

Figure 5: Evolution of the monthly average temperature in the Dakar region (1991-2020)



Source: World Bank

3.3 Hydrology

The hydrographic network of the area is essentially composed of rainwater flow channels or talwegs because the project area does not have any perennial watercourses. The area of the site, located in the watershed of Sébi-Ponty, is characterized by a relatively dense hydrographic network which flows towards the depression of Lake Sébi-Ponty, located in the extension of the fossil valley of Ndoyène. The clayey typology of the soils as well as a shallow aquifer, 7 meters in general, make the watershed belong to the class of impermeable watersheds.

The lake is the only perennial body of water in the vicinity of the site, to the south. However, in years with high rainfall, the water body can expand considerably. It is a wetland that is home to fish, birds and reptiles. These edges are rich in silt and very popular for market gardening, as was observed during field investigations.

3.3.1 Surface water

The Mbao and Bargny plateaus are drained by seasonal backwaters. They flow only during the rainy season. The backwaters of Mbao, Diokoul and Bargny are the most important. They generally open out into lagoons located at the back of the coastal strip (which can be broken in places by rainwater). They are more or less submerged.

According to Niang Diop (2004) there are two main backwaters in Rufisque, one to the west of Cap des Biches (called the Rio Fresco) and to the east bordering the town. There are four slopes in the department. Their flow directions are oriented from North to South to meet towards the Center through the undulating depressions. The three watersheds are connected to drainage channels, which allows them to evacuate most of the rainwater (Laaroubi, 1997).

In the study area, the nearest watershed is that of Diokoul, which occupies an area of 1.173 km2. It is a low-altitude watershed and the soils are marly-clayey.

It should be noted the presence of the Atlantic Ocean located to the west of the Department.

3.3.2 Underground waters

Groundwater is contained in two aquifers, the deep aquifer which corresponds to that of Maestrichtian sands and sandstones and the semi-deep aquifers represented by Paleocene limestones to the east of the Diass massif to the west of Lake Tanma .

The deep aquifer covers 4/5 of the territory with a potential of 500,000 m3/d. It can be exploited with boreholes sometimes reaching more than 500 meters deep with flow rates varying between 100 and 205 m3/h. Located in the Horst de Diass area, to the west of the Thiès cliff, on a narrow strip at the outcrop of the Maestrichtian up to the beginning of the Cape Verde peninsula, the Maestrichtian aquifer system is characterized by bicarbonates, generally of low mineralization.

The Palaeocene aquifer is best known and exploited in the western sector of the country around Horst de Diass in the Pout and Sébikotane compartment and in the Mbour area. In the Diass horst sector, a decrease in the piezometric level testifies to the overexploitation of the aquifer in the Diass horst and the rainfall deficit since the 1970s. These constraints have led to a general drop in the piezometry.

A shallow water table is exploited by the market gardeners of the commune of Diamniadio established in the villages established along the hydrographic network of the area.

The drinking water supply in the project area is made by drinking water pipes in connection with the SDE. The values communicated by the DGPU are respectively 100 l/hbt/d for those living in high standing and 80 l/hbt/d for those living in medium standing and in budget housing.

The project area thus remains an area receiving transferred water. Consequently, the project will not have any negative impact on groundwater. Their water needs at all phases of the project will be fully covered. On the other hand, the wastewater treated and discharged by the WWTP as well as the runoff water towards the lake located at the lowest point of the watershed will recharge the surface water tables collected by wells by the small market gardeners of the surrounding villages. The recovery of treated wastewater for market gardening should be studied to strengthen the livelihoods of local populations.

3.4 air quality

According to the Dakar Air Quality Management Center, certain areas of the Dakar region, particularly high traffic areas, are faced with pollution levels beyond the limits defined by the NS-05-062 standard. . The pollutants concerned are particularly sulfur dioxide (SO2), the mixture of benzene, toluene and xylene (BTX), ozone and PM10 particles (indicator of concentration of particles which can penetrate the respiratory system) and PM2. 5 (indicator of total gravimetric concentration of different classes of particles that are directly emitted or formed secondarily).

In the project area of influence, air pollution is expected to increase with the intensification of road traffic (mobile sources) on the Dakar-Diamniadio highway and industrial facilities (stationary sources) that are in operation (SOCOCIM, industrial estate of APROSI) or planned for the Diamniadio Industrial Park. Hence the need to establish the baseline situation before the advent of all the infrastructure planned in the area for quality monitoring.

The main pollutants from mobile sources (transport among others) will mainly come from engine exhaust effluents, but also from gasoline evaporation. The main pollutants are CO and CO2, NO, monocyclic aromatic hydrocarbons (HAM), fine particles in suspension (PS), polycyclic aromatic hydrocarbons (PAH) and SO2 for the diesel engine, hydrocarbons etc.

The commissioning of the motorway (Dakar-Saint Louis) should result in an increase in car traffic, which is one of the strategic objectives of the project. The downside of such a situation will be increased air pollution and greenhouse gas emissions. In the exploitation phase, it is evaluated at around 10.502CgCO2eq by 2060.

Air quality can deteriorate considerably due to weather conditions, as was the case on Tuesday, February 13, 2018, during which "the air quality index went to red alert (very bad) due to an increase in suspended particulate concentrations whose hourly averages exceeded 800 micrograms per cubic meter" (Dakar Air Quality Management Center, February 2018).

The exposure of populations to this intermittent fine particle pollution presents a real risk to their health. It will therefore be necessary to take this aspect into account to prevent the personnel who will have to work on the site from being exposed to the ambient air for a long time during this period.

3.5 Noise

According to article R 84 of the Environmental Code, the maximum noise thresholds not to be exceeded without exposing the human body to dangerous consequences are fifty-five (55) to sixty (60) decibels during the day and forty (40) decibels at night. According to the World Health Organization (WHO, 1980), the dose deemed safe for hearing is 75 audible decibels (dBA) for exposure for 8 hours.

The main sources of noise in the area will be due to road traffic, particularly on the toll motorway, industries, road works, building and civil engineering, construction and the neighbourhood. All these sources will coexist in the vicinity of the project.

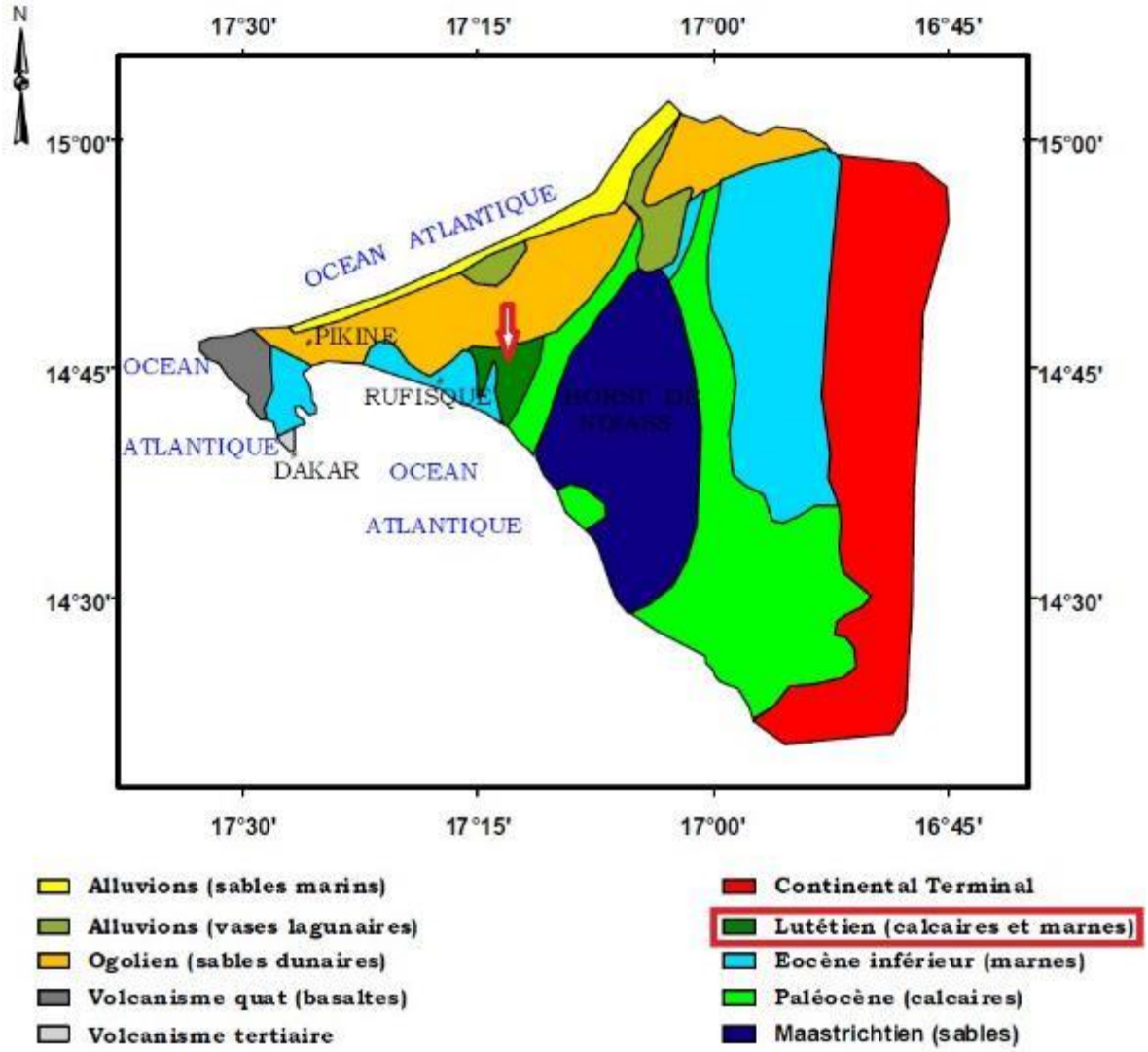
What is not yet known is the risk of hearing damage due to the lack of sound pressure level and exposure data that determine the prevalence of noise-induced hearing damage. Despite this incompleteness, i.e. a situation where information for decision-making does not exist, it would be advisable, as a precautionary principle, to establish the reference situation for sound pressure levels in the entire area. of the project to properly measure the impacts of future human activities.

3.6 Geology and soil

According to the conclusions of the report on the study of the dangers of the Abdou Diouf Conference Center in Diamniadio, the project area is not subject to a significant level of seismic or climatological disaster risk (absence of cyclones and tidal waves). . The flat topography also eliminates a priori the risk of landslides.

The site is in the Lutetian zone according to the geological map below and we should therefore mainly encounter marls and limestones in the depth of the survey.

Figure 6: Geological context of the site



Source: LixCap

The results of the geotechnical surveys carried out as part of the preliminary geotechnical study6 at the location of the construction project for a sports complex in Diamniadio have made it possible to highlight the formations present on the site.

The ground section obtained is as follows from top to bottom:

- A layer of black sandy clay
- A marly clay formation
- A marly formation containing calcareous concretions
- A layer of yellow marl containing blocks of limestone

The hydrostatic level of the water table was not encountered during the investigations.

The sections of the drillings obtained and the laboratory tests carried out on the samples taken revealed very plastic clay and marly soils, and presenting potential for shrinkage - swelling.

According to the soil report, the site therefore has soils with poor identification characteristics. These soils cannot validly be used as foundations for future works.

As part of the realization of the sports complex project, the loads of the structures can therefore be taken up by means of foundations laid either on a substitute embankment after purging the marly soils, or on deep rock layers if the latter are highlighted. during a G2 geotechnical campaign.

Case of substitution: taking into account the surveys carried out, the company must carry out the excavations on the right-of-way of the works. An extension of the substitution beyond the outer limits of the constructions is necessary to preserve the structures from shrinkage and swelling of the marls. A lateritic material will then be placed by successive compaction of layers 20 centimeters thick. This laterite must be of good quality and have a plasticity index of less than 20%. It must be adequately compacted to 95% of the Modified Optimum Procter. Also another type of material can be used as a substitute. It will be a well-consolidated granular backfill placed in 20 cm layers compacted with 4 to 6 passages of a vibrating roller compactor.

3.7 Wildlife

The area is already designed to collect logistics activities. Plant and animal species are present in the Diamniadio Integrated Industrial Platform , it should be noted that the site is home to low biodiversity. Indeed, the area where the project is located is an industrial area. The industrial zone can shelter little diversified animal species in particular the birds, also the plant species are few at the level of the site. Although it does not include a great biological richness, it does not prevent the proponent from implementing appropriate mitigation measures through reforestation and the development of green spaces for regulating services, which are the advantages enjoyed by the people through ecosystem processes

Like vegetation, fauna has also been impoverished in recent decades due to the modification and destruction of its habitat by urbanization and productive activities. It is represented by water and savannah avifauna, small mammals, reptiles, insects. We still note in the area the presence of monkeys, hares, squirrels, genets, palm rats, mongooses, wild cats, jackals, porcupines, monitor lizards, and a wide variety of birds (hornbill, cattle egret (Bubulcus ibis), green parrot, francolins (Pternistis sp), doves (Streptopelia sp) etc.).

3.8 The flora

The project site is located in the industrial zone which is already pre-established for the construction of logistics activities.

The vegetation that has developed on the hydromorphic soils covering the limestone rocks of the Bargny plateau is essentially made up of thorny shrubs (Ziziphus mauritiana, Faidherbia albida (Kaad) and Adansonia digitata (Baobab). herbaceous cover consists of species such as Andropogon gayanus, Aristida stipoides, Schoenefeldia gracilis, Tephrosia linearis, Indigofera astragalin which settle during the rainy season.

Among the plant species inventoried on the site Faidherbia albida, and ziziphus mauritiana are partially protected by the forest code of Senegal. The identified baobabs are off site. The tree species found are the tamarind tree (Tamarindus indica), the lemon tree and the mandarin tree. These species are located outside (nearly 5 km) of the industrial zone of the project.

4 Potential environmental impacts

The project to build a storage infrastructure for perishable products generally generates environmental consequences such as the loss of agricultural land, soil erosion, degradation of plant cover, socio-cultural effects, disruption of local activities, etc. . During the works, the negative impacts are generally limited in time. Those of the exploitation phase can appear continuously during the life of the project.

The project area does not include natural habitats or areas with legal protection and classified physical cultural resources.

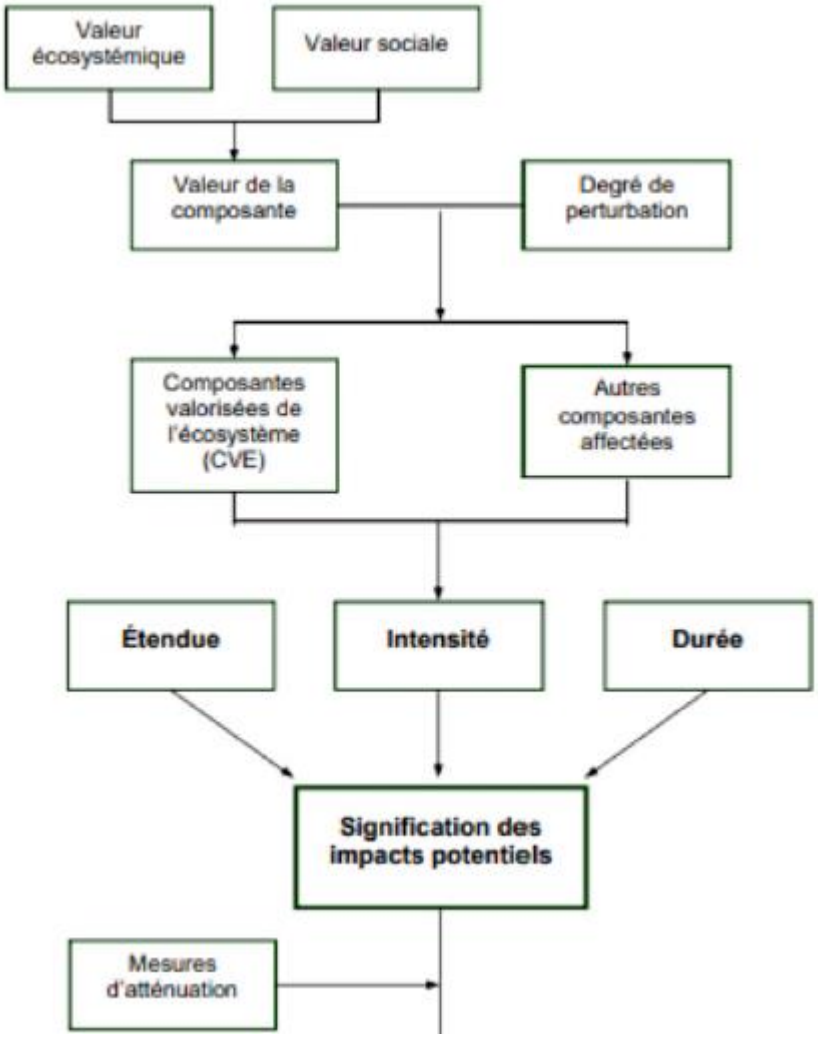
4.1 Impact evaluation methodology

The impact assessment methodology used in this project is based on the methodological approach developed by the Ministère des Transports du Québec and on the federal approach recommended by the Canadian Environmental Assessment Agency for carrying out environmental reviews. prerequisites.

This assessment of the impacts is based first on the assessment of three indicators, i.e. the intensity (determined according to the value of the component and the degree of disturbance), the extent and the duration of the the apprehended impact. These four indicators are aggregated into a summary indicator, ie the significance of the anticipated potential impact. In a second stage of analysis, the importance of the residual impact is estimated so as to make an overall judgment on the impact associated with the interaction of an activity on an environmental component, by considering the mitigation measures. put forward to reduce the anticipated adverse effects. The figure below shows the process leading to the evaluation of the significance of the potential environmental impacts, then to that of the significance of the residual environmental impacts, including those that could affect the valued ecosystem components (VECs). Details relating to each step of the evaluation process are presented below.

For the purposes of this project, the terms “environmental impact” and “environmental effect” are equivalent.

Figure 7: Stages of the environmental impact process



The first step in evaluating the significance of the impact consists in evaluating the potential impact of the project by taking into account its intensity, according to the value of the component affected and the degree of disturbance apprehended, its extent and its duration.

4.1.1 Description of indicators

Each of the indicators for determining the significance of the potential impact includes a scale of three distinct levels. The description of each of these indicators and the levels used to characterize them are presented below.

4.1.1.1 Impact intensity

The intensity of the impact expresses the relative importance of the consequences attributable to the alteration of a component of the environment. It concerns the extent of the modifications that affect the productivity of a habitat, a species or a community or the use of a component affected by the source of impact. It integrates the value of the component both in terms of its ecosystem value and its social value.

The intensity of the impact can be low, medium or high. This evaluation is expressed by the degree of disturbance.

a. Determination of component value

The ecosystem value expresses the relative importance of a component according to its interest for the ecosystem where it is located. It calls on the judgment of specialists following a systematic analysis of the components of the environment. There are three ecosystem values:

- Strong: the component is of major interest in terms of its ecosystem role or biodiversity and exceptional qualities whose conservation or protection are the subject of consensus in the scientific community;
- Average: the component presents a strong interest and recognized qualities whose conservation or protection represents a subject of concern without however being the subject of a consensus;
- Low: the component has an interest and qualities whose conservation and protection are the subject of little concern.

b. Determination of the degree of disturbance

The degree of disturbance assesses the extent of the changes made to the structural and functional characteristics of the component likely to be affected by the project. These modifications may result in the total or partial destruction of the component or the loss of one or more characteristics specific to it. This degree of disturbance takes into account the reversibility or irreversibility of the environmental effect on a component. There are three degrees of disturbance:

- Strong: the project calls into question the integrity of the affected component, strongly and irreversibly modifies this component or the use made of it;
- Average: the project leads to a reduction in the quality or use of the affected component without compromising its integrity;
- Low: the project only slightly changes the quality, use or integrity of the environmental component affected.

c. Impact intensity determination

The grid for determining the intensity of the impact based on the value of the environmental component and the degree of disturbance is presented in the following table:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

It is thus possible to identify three classes of intensity:

- High: the project completely or largely destroys or alters a component of the environment and calls into question its integrity. For the components of the biological environment, the intensity is high if an entire population or a high proportion of the population or habitat of a species is threatened. For the components of the human environment, the intensity is high if it significantly or irreversibly affects or limits the use of the component by a local community or population.
- Medium: the project modifies the affected component without jeopardizing its integrity and its use or leads to a limited modification of its general distribution in the environment. For the components of the biological environment, the intensity is medium if the effect affects an average proportion of the population, of the size of the population or of the habitat of the species,

without calling into question the integrity of this species, but may lead to a decrease in average abundance or a change in distribution. For the human environment, the intensity is medium if the effect affects part of a community or a population or if it significantly reduces the use, quality and integrity of the use of the component without irreversibly and completely reducing its use.

- Low: the project slightly alters the component, but does not really modify its quality, its general distribution or its use. For the components of the natural environment, the intensity is low if only a small proportion of the population or the habitat of a population is affected by the project. In this case, the effect does not jeopardize the integrity of the species and does not lead to a reduction or a change in the distribution that exceeds the fluctuations in natural conditions. For the human environment, the intensity is low if a small part of a community or population is affected and if the reduction in the use or the quality of the component does not call into question its vocation or its use.

4.1.1.2 Extent

The extent expresses the spatial scope of the effects generated by an intervention in the environment and refers to the distance or the surface on which the disturbance will be felt. Thus, the extent can represent the relative distance over which the repercussions of an intervention on an element of the environment will have an effect. It can also represent the relative area that will be affected, either directly or indirectly (nature), by the effects of the project. In the context of this project, three levels of scope are distinguished:

- Regional: the intervention on an element of the environment is felt over a vast territory or at a significant distance from the project site, or is felt by the entire population of the study area or by a significant proportion of the population .
- Local: the intervention affects a relatively small space or a number of elements of the same nature located near the project or at a certain distance from the project, or it is felt by a limited proportion of the population of the study area .
- Punctual: the intervention affects only a very limited space, few components inside or near the project site, or it is felt by only a small number of individuals in the study area .

4.1.1.3 Duration

Impact duration refers to the time dimension of the impact. It assesses the period during which the effects will be felt in the environment. This period may be the recovery or adaptation time of the affected element. The duration of an impact can be:

- Long: the impact is felt continuously or discontinuously throughout the life of the project.
- Medium: the effects of the impact are felt continuously or discontinuously over a relatively prolonged period of time but generally less than the life of the project.
- Short: the effects are felt continuously or discontinuously over a limited period of time, generally corresponding to the construction period or when the recovery or adaptation time of the affected component is less than one year.

The indicator that constitutes the duration also takes into account the schedule, that is, all the stages of the life of the project, for example at the time of construction or operation, as well as the frequency of the environmental impacts on the components of the environment. Frequency is the measure of repetitions of an environmental effect over a period of time.

4.1.2 Assessment of the significance of the potential impact

The assessment of the significance of the potential impact is based on the integration of the three indicators described above, i.e. intensity, extent and duration of the impact, and is obtained using the grid presented in the table below. It is thus possible to identify three levels of significance:

- Major: the impact causes strong repercussions on the component affected by the project, corresponding to a profound alteration of its nature and its use, and which may even jeopardize its sustainability;
- Moderate: the impact causes appreciable repercussions on the affected component, resulting in a partial alteration of its nature and its use, without however calling into question its durability in the study area;
- Minor: the impact causes reduced repercussions on the affected component, resulting in a minor alteration of its quality and use.

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Strong	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Major
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor
Weak	Regional	Long	Mean
		Mean	Mean

		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

4.2 Climate and meteorology

4.2.1 During the construction phase

The construction site has no impact on the climate, namely: Temperature and rainfall.

The impact of the construction phase on climate and temperature is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the construction works on the climate will be of low intensity

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor

	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the construction works on the climate will be of minor significance.

4.2.2 During the operation phase

Estimating the exact impact of cold chains on the environment is a difficult exercise because the type of cold chain logistics varies from region to region and data on energy consumption or emissions from different sections of the cold chain are inconsistent. The limited data available suggests that food cold chains account for 1% of global CO2 emissions [1]. Sources likely to cause climate change are: Emissions of greenhouse gases during cooling, which come from refrigerated vehicles. Thus, the increase in road traffic resulting from transport activities will contribute to greenhouse gas emissions.

Food cold chain process	Overview of emission sources	Quantity of emissions
Post-harvest cooling (including cleaning, packaging, etc.)	Refrigeration is an energy-intensive technology. Depending on the type of food and the efficiency of operations, refrigeration can account for 60-70% of the electricity used in the establishment. The energy load also depends on the product and the cooling system cooling system (eg freezing, refrigeration for fresh meat and milk products).	There are no precise estimates of GHG emissions from electricity consumption for post-harvest cooling on a global scale due to the discrepancy in energy consumption between different countries. - The pre-chill range, especially for fruits and vegetables, is also defined by the regional sales cycle of these types of food.
Transportation	Depending on the type of refrigerated truck and the temperature maintained, it can consume around 20 liters of diesel per hour of travel. The refrigeration unit uses approximately 8% of the truck's total fuel consumption when in use.	The CO2 emissions of medium, large and 32-38 ton refrigerated vehicles vary between 51g CO2/pallet/kilometre (km) and 115g CO2/pallet/km depending on temperature conditions. Refrigerants could increase CO2 emissions from food vehicle transport systems by up to 40%. It is estimated that a high class vehicle with a refrigerant charge of 6 kilograms (kg) and an annual leakage rate of 20% produces 5.3 g CO2/pallet/km.

[1] James, SJ & James, C. The food cold-chain and climate change. Food Res. Int. 43, 1944–1956 (2010).

The impact of the operating phase on the climate and temperature and of average importance to the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase on the climate will be of low intensity

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The effect of the operation phase on the climate will be of minor significance.

4.3 Soil and physical change

Soil can be affected and degrades over time. Soil degradation refers to undesirable changes in the physical, chemical and biological properties of soils.

4.3.1 During the construction phase

The cold chain infrastructure construction works will generate various wastes that will pollute the ground. It's about :

- Ordinary Industrial Waste (DIB) which is non-inert and non-hazardous waste generated by activities. We can cite for example: timber (frames, framework, floor, etc.), metals, plastics, unsoiled packaging waste, paper, cardboard, etc.
- Inert Waste (DI) is waste which does not undergo, in the event of storage, any significant physical, chemical or biological modification and does not present a danger to humans or the environment. Examples: remains of concrete and mortar, broken concrete blocks,

sand and gravel, shavings, sawdust, pieces of formwork wood, mixed construction and demolition waste, not containing any hazardous substance, etc.

The impact of the construction phase on the ground is low following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on the ground will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact is minor. It requires special mitigation measures. This impact is reversible.

4.3.2 During the operation phase

The most important sources of soil pollution are linked to cleaning water from the premises. With the promoter's requirement for the installation of separate pits (collection of washing water) this impact will be reduced. The ground of the buildings will be sticked what will prevent having infiltrations. In addition, domestic solid waste generated by project staff may degrade the quality of surrounding agricultural land. Collecting its waste and transporting it to the nearest public landfill site.

The impact of the operation phase on the ground is low following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase of the project on the ground will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	**Long**	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact is low. It requires special mitigation measures. This impact is reversible.

4.4 Capacity Building

The project will increase capacity building and training during the construction and operation phases, ensuring that local people, project-affected people and their communities are prioritized. During the construction and implementation of the project, local people and project affected people will receive training, their skills will be enhanced and they will be used even after the life cycle of the project.

The impact of the operation phase on capacity building is of minor importance to the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase on capacity building will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	**Long**	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on capacity building will be of minor significance.

4.5 Sources of energy

4.5.1 During the operation phase

The average electricity consumption of current cold stores is around 30 to 50 kWh/m³/year, depending on the characteristics of the building, the activity, the temperature of the products, the outside temperature, the speed of rotation, the the size of the rooms. The following measures reduce consumption:

- Control the insulation system
- Provide maintenance
- Sustained management.

4.6 Hydrology

4.6.1 Surface water

4.6.1.1 During the construction phase

Surface water quality could be affected by a number of factors during the construction of the cold chain infrastructure. Construction activities can lead to increased soil erosion and sediment loading of nearby waterways, while leaks or accidental spills of hydrocarbons (oil, fuel or other substances) can also pollute waters. surface and have an impact on groundwater.

The impact of the construction phase on surface water is low following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on surface water will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact is minor. It requires special mitigation measures. This impact is reversible.

4.6.1.2 During the operation phase

The project activities are not likely to generate substances or objects that can pollute surface waters. It is noted that at the level of the project site, the absence of any watercourse, the rainwater runoff could be loaded by the washing waters of the infrastructure which could have an impact on the flora and fauna of the surrounding area of the site.

The impact of the operation phase on surface water is low following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase on surface water will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact is minor. It requires special mitigation measures. This impact is reversible.

4.6.2 Underground waters

4.6.2.1 During the construction phase

Construction work in cold chain infrastructure can have significant impacts on hydrology and groundwater quality. Potential chemicals and improper handling of lubricating sludge, fertilizers and other toxic substances during construction can lead to groundwater pollution through gradual seepage.

The impact of the construction phase on groundwater is low following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction works on groundwater will be of low intensity

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact is low. It requires special mitigation measures. This impact is reversible.

4.6.2.2 During the operational phase

Project activities are not likely to generate substances or objects that could pollute groundwater. So there will be no direct or indirect impact of the project during the operation phase.

The impact of the operation phase on groundwater is low following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction works on groundwater will be of low intensity

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor

		Short	Minor

The significance of the potential impact of the operation phase on groundwater is negligible.

4.7 Vibration

4.7.1 During the construction phase

The workers on the various infrastructural modernization work sites of the port, in particular the workers, will be exposed to the vibrations generated by the vehicles and machines operating on the site, during the dredging, excavation and vibro-compacting works.

The oscillations are exerted on the workers by means of means of transport, machines and vibrating tools. The importance of mechanical oscillations, characterized by their frequency, amplitude and duration, determines whether or not their action is detrimental to health, well-being and safety.

The effects of oscillations and vibrations on human beings can be detrimental to their well-being or even damaging to their organism. The oscillations can act both locally and on the whole body. The effects of vibrations are still poorly understood, above all in the neurovegetative field. Local vibrations can cause health problems, such as vasomotor disorders (Raynaud's syndrome or dead fingers), damage to the nervous system, damage to the bones and joints of the upper limbs and degeneration of the spine.

Regular exposure to vibrations, daily or several times a week, represents a health risk if the following acceleration values, weighted over a working day, are exceeded:

Guide values for vibrations

$$- Ensemble\ main - bras: \overline{a_{hw}} \leq 5m/s^2$$

$$- Corps\ entier: \overline{a_2} = 0{,}8m/s^2$$

The impact of the construction phase on vibrations is moderate following the evaluations carried out in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The intensity of this impact is classified as medium, the value of the component is social since it concerns human beings.

Impact intensity	**Extent of impact**	**Duration of impact**	**Meaning of potential impact**
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the construction phase is medium. It requires special mitigation measures. This impact is reversible.

4.7.2 During the operation phase

During the operational phase, the frequency of truck movements will increase, which may induce an increase in vibrations. The impact of the operation phase of the project on vibrations in the area is of low significance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase of the project on vibrations around the area will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on noise will be of minor significance, this impact is reversible.

4.8 air quality

4.8.1 During the construction phase

The Air component testifies to an accumulation of fine particles due to the movement of earth, digging and traffic in the site. Air quality may deteriorate within the work area. Maximum daily emissions can be estimated as a function of time with the maximum expected operations of construction equipment, fugitive dust, heavy truck operations, and commuting of the workforce, divided by the number of working days. operation during this period (6 working days per week).

The impact of the construction phase on air quality is low following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction work on air quality will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean

		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The significance of the potential impact of the project during the construction phase is low. It requires special mitigation measures. This impact is reversible.

4.8.2 During the operational phase

It is important to note that the project is taking place in rural areas where the air quality is generally good. The current and existing source of air pollution along the project area is vehicular traffic (particulates and combustion emissions). Potential air emissions from the Project in the form of fugitive dust and emissions releases will occur as a result of transportation activities of various products to and from Project sites, particularly when trucks travel over unpaved portions of tracks and roads. The local ambient air quality around the project area will be affected during the operation phase due to air emissions generated by transportation activities. The impact of the operation phase of the project on noise in the area is of medium importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase of the project on the noise around the area will be of low intensity.

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on noise will be of low significance.

4.9 Noise

4.9.1 During the construction phase

During the construction phase, the noise level due to the mobilization of heavy machinery (side-boom, trax, mechanical shovels, bulldozer, trucks, etc.) is below the admissible limit threshold (60 dB) for short-term exposure. The non-repetitive nature of the construction work on the same perimeter and the scarcity of nearby environments potentially impacted, makes it possible to assess that the effects of noise and vibrations are minor, except for the site personnel, to whom by default, measures mitigation are required.

Sound levels from these sources can be estimated at 70 dB(A). The work will respect the usual working hours (7:00 a.m. to 6:00 p.m.).

In addition, Law 65-99 sets out the noise limits and individual protection standards.

During the work, these unusual noises in the environment and the rise in the noise level in the environment will cause noise pollution that can cause hearing problems on the site and disturb the tranquility of the surrounding populations.

The impact of the construction phase on noise is of medium importance following the assessments carried out in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction works on noise will be of medium intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the construction phase is medium. It requires special mitigation measures. This impact is reversible.

4.9.2 During the operation phase

The noise emitted by the unit will be produced by trucks as well as transport vehicles, the movement of the vehicles themselves and the operation of mechanical equipment. During the operation phase, noise from trucks is not likely to be heard above the background noise of the surrounding road system.

The promoter will pay attention to the noise produced by the installations of his unit in order to minimize the impact on the areas bordering the site, it will however be very low and will remain within the standards taking into account:

- Both the machines and the installations carried out will comply with the safety standards in force;
- The sound levels which are very low compared to the standards in force (70db);
- Compliance with transport schedules (avoid night schedules).

The impact of the operation phase of the project on noise in the area is of medium importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase of the project on the noise around the area will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean

		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on noise will be of low significance.

4.10 Wildlife

4.10.1 During the construction phase

The construction phase does not represent any significant impact that could affect terrestrial fauna. As the species existing on the two facades are mainly birds, a temporary migration from the site perimeter is expected. However, no rare or vulnerable species is likely to be directly impacted, except in relation to their deterioration or the destruction of their natural habitat (forests, Marjas, etc.).

The impact of the construction phase on wildlife is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of construction works on wildlife will be of low intensity

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of construction works on wildlife will be of minor significance.

4.10.2 During the operation phase

During the operation of the project and to meet the sanitary requirements of the storage and distribution of the cold chain, it is important to install and have the necessary devices to hunt insects and other species outside the infrastructure, which will impact wildlife around the project but not to a significant extent.

The impact of the operation phase on wildlife is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of the operation phase on wildlife will be of low intensity.

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	**Long**	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on wildlife will be of minor significance.

4.11 The flora

4.11.1 During the construction phase

Vegetation at the project site consists of grass and seasonal crops. Land preparation and earthworks operations will only require some deforestation.

Hence, the impact of the development, construction and transport work phase on the vegetation of the environment studied will be of low intensity.

The project is located in an area with no space recognized as a protected area. However ; it is located in the middle of agricultural land and land with dayas and crops will not be impacted during the project's operating phase.

The impact of the construction phase on the flora is of minor or even negligible importance following the assessments carried out in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of the construction works on the flora will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the construction works on the flora will be of minor significance.

4.11.2 During the operation phase

The installation of the project will have an indirect impact through the clearing of vegetation on microfauna and the protection of the soil against the various forms of soil erosion. This impact remains

slight taking into account the nature of the project. Also, the petitioner will reinforce the installation of a plant screen at the level of the fence.

The impact of the operation phase on the flora is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of the operation of the infrastructure on the flora will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	**Long**	Minor
		Mean	Minor
		Short	Minor

The effect of the construction works on the flora will be of minor significance.

4.12 Odors

4.12.1 During the construction phase

Due to its nature, the cold chain infrastructure construction project has minor negative impacts, indeed the waste emitted during the construction phase will be the only source of unpleasant odors.

The impact of the construction phase on odor is of minor or even negligible importance following the assessments carried out in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on the odor will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean

		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of construction works on odor will be of minor significance. This impact is reversible.

4.12.2 During the operation phase

During the operation of the infrastructure, there will be no release of odors, even the waste that will be rejected will not have an impact on the odor of the area surrounding the site.

4.13 Waste management

4.13.1 During the construction phase

Several activities and factors related to the sub-project will produce waste likely to pollute the ground or clutter it. Since the project will be built on an industrial zone, this will ensure compliance of waste management during the construction phase with national and international laws.

The impact of the construction phase on waste management is of minor importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction works on waste management is low

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	**Minor**
		Short	Minor

The effect of construction works on waste management will be of minor significance, this impact may be reversible.

4.13.2 During the operation phase

The operational phase of the project will generate moderate amounts of solid waste. The types of waste likely to be generated include packaging, green waste, cans, bottles, hazardous waste (waste fuel, etc.).

The industrial zone is subject to the texts of national and international laws with regard to waste management.

The impact of the operations phase of the project on waste management is of minor importance following the assessments made in the following tables:

Degree of disturbance	**Component value**

	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of cold chain infrastructure operations on waste management is low

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	**Minor**
		Short	Minor

The effect of infrastructure operations on waste management will be of minor significance, this impact may be reversible.

4.14 Cultural properties

4.14.1 During the construction phase

Diamniadio does not have cultural properties. No paleontological evidence has been recorded in the area. However, an archaeologist may be hired during the construction phase to monitor excavated areas and any unearthed items or artifacts. If elements are discovered, it will be necessary to modify the route of the pipeline to avoid damaging them.

The impact of the construction phase on the cultural properties is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of construction works on cultural properties will be of low intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of construction works on cultural properties will be of minor significance.

4.14.2 During the operation phase

Based on public consultation, site assessment and available documentation, there is no area of interest in terms of archaeological, historical and cultural sites near the cold chain infrastructure.

The impact of the operation phase of the project on the cultural properties is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	**Weak**

The impact of the operationalization of the project on cultural properties will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of construction works on cultural properties will be of minor significance.

4.15 natural landscapes

4.15.1 During the construction phase

The landscape references near the project site are characterized by agricultural land. The impacts that can be generated by the installation of the project relate essentially to the modifications of the characteristics of the local landscape by the construction of the premises at the level of the site.

The impact of the construction phase on the cultural landscapes is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the construction works on the cultural landscapes will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor

		Short	Minor

The effect of construction works on cultural landscapes will be of minor significance.

4.15.2 During the operation phase

The construction of the cold chain infrastructure in the Diamniadio Integrated Industrial Platform will no longer change the landscape of the environment.

The impact of the operation phase on the cultural landscapes is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase of the project on the cultural landscapes will be of low intensity.

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation of cold chain infrastructure on cultural landscapes will be of minor significance.

4.16 Geological features

The project will have no direct or indirect influence on the geological characteristics of the area in the two phases: construction phase and operation phase.

The impact of the construction and operation phase on the geological characteristics is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase of the project on the geological characteristics will be of low intensity.

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor

		Mean	Minor
		Short	Minor

4.17 Hydrological characteristics

The project will have no direct or indirect influence on the hydrological characteristics of the area in the two phases: construction phase and operation phase.

The impact of the construction and operation phase on the hydrological characteristics is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase of the project on the hydrological characteristics will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

4.18 Cultural landscape

The project will have no direct or indirect influence on the cultural landscape of the area in the two phases: construction phase and operation phase.

The impact of the construction and operation phase on the cultural landscape is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase of the project on the cultural landscape will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

4.19 Entertainment

The project will have no direct or indirect influence on the entertainment areas of Diamniadio in the two phases: construction phase and operation phase.

The impact of the construction and operation phase on entertainment is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the project's operation phase on entertainment will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

4.20 Ground subsidence

Activities that may cause ground subsidence are not anticipated during the construction or operation phase. There will be no direct or indirect influence of the project on ground subsidence.

The impact of the construction and operation phase on ground subsidence is of minor or even negligible importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	**Weak**	Weak

The impact of the operation phase of the project on ground subsidence will be of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

5 Current social reference state

5.1 Population

The general population census of 2013 estimated the population of the municipality of Diamniadio at 23,547 inhabitants and that of the municipality of Bambilor at 44,962 inhabitants (ANSD 2015). With a workforce of 10,898 inhabitants in 2002 (ANSD 2004), the population of Diamniadio has doubled in a decade. Among the growth factors noted, the share of immigration is not negligible. Indeed, the department of Rufisque is the area of expansion of residential spaces par excellence in the Dakar region. It has become the preferred destination for people looking for new housing. Land saturation in the departments of Dakar, Pikine and Guédiawaye explains the rush to the department of Rufisque for housing needs. Thus, with an area of 371.7 km2, the department of Rufisque occupies more than 67% of the Dakar region and has the last land reserves in the region.

It thus hosts the major urban development projects of the State: infrastructure projects, industrial activities, housing projects. More than 25,000 plots are being allocated and built (Diamniadio commune 2017). The advent of the urban center of Diamniadio with a projection of 350,000 inhabitants by 2025 suggests a demographic boom in the municipal perimeter and its surroundings in the coming years. Historically, the land of Diamniadio was populated by Lebous and of Serer but the various highly economic migrations (installation of industries, agricultural activities, etc.). Today, these neighborhoods are characterized by an ethnic diversity which has increased due to the various migrations linked above all to the availability of housing plots or to economic reasons.

The establishment of the Diamniadio center in this territory is a new factor of local migration, particularly with the influx of laborers and various service providers. Indeed, the objective of functional and social diversity set at the pole, suggests the presence of a wave of populations with a more modern form of housing and a densification of economic, administrative, social infrastructures and associated services.

5.2 Public facilities

The neighboring districts around the urban center of the extension zones (such as Keur Ndiaye Lô in Bambilor and Bargny green city in Bargny) or are former villages attached to the municipalities (this is the case of Déni Malik Gueye in Diamniadio). Access to basic social services is moderately satisfactory.

5.2.1 Health

In the commune of Bambilor, there is only one health post in Keur Ndiaye Lô, one health center and three health posts in Diamniadio. The construction of the Diamniadio pediatric hospital reinforces the existing potential by offering a technical platform that polarizes beyond the municipality, the department of Rufisque but also localities in the interior of the country and the sub-region. The health infrastructures of these local authorities are characterized by under-equipment and a shortage of personnel, like many of the country's health structures.

The urban center of Diamniadio comes to enhance the medical platform by developing an ambitious health program with the realization by the Pasteur Institute Foundation of Dakar of the Africamaril project which consists of the construction of the largest production unit of vaccines against yellow fever in Africa. The unit aims for an annual production of 10 to 15 million vaccines with a maximum capacity of 30 million.

A Dakar Medical City university hospital center is also planned in the urban center of Diamniadio.

5.2.2 Education

There are many primary schools in the neighboring districts (Keur Ndiaye Lô, Déni Malick Gueye and Bargny ville verte). The urban urban center reinforces the sector, particularly for higher education with

the second University of the Dakar region (Amadou Makhtar Mbow University), oriented towards science, technology, trades, economics and management and social sciences.

It should also be noted the presence of private teaching structures in the PUD such as the Health Research Institute for Epidemiological Surveillance and Training (IRESSEF).

5.2.3 Access to energy and the telecommunications network

The Diamniadio urban center must be served by the Senelec network. The various infrastructures also have their own production units made up of emergency generators or photovoltaic solar systems.

Telephone network coverage is with the three main mobile operators in Senegal: Orange, Tigo and Expresso. The first two have set up data centers in the area.

5.3 road traffic

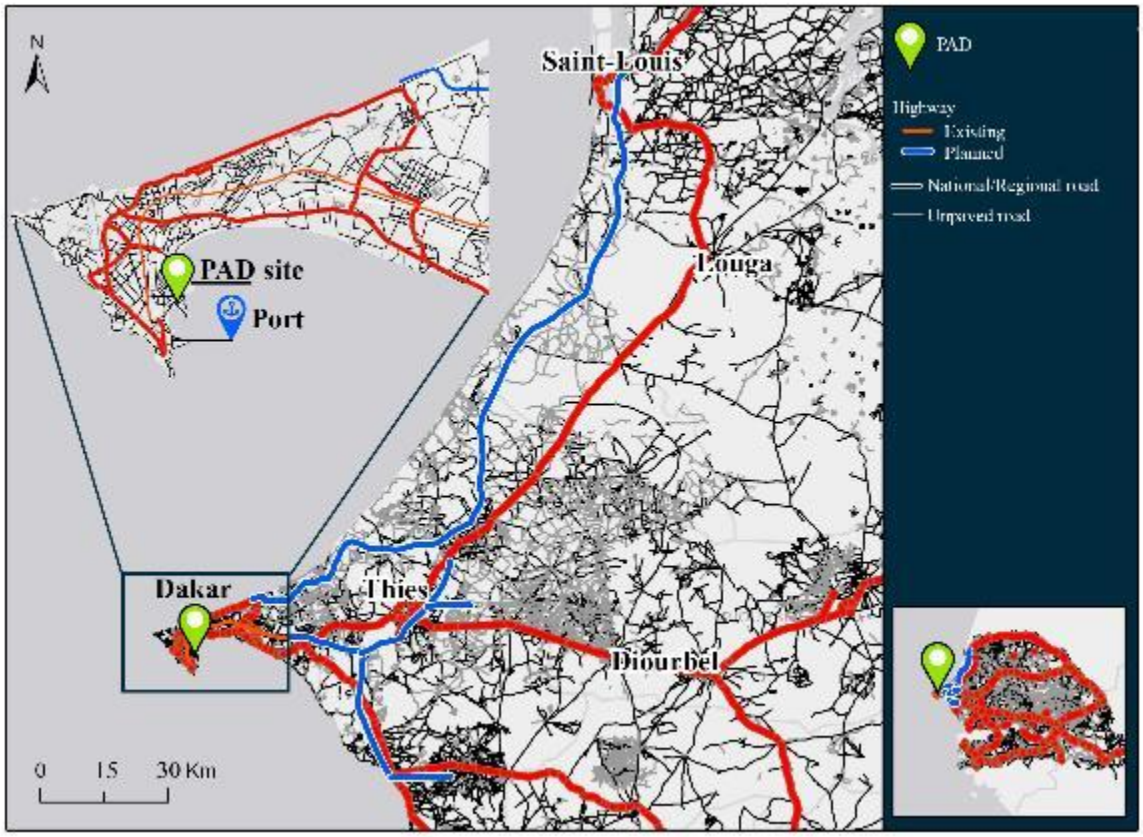
Since the end of 2012, access to the municipality of Bambilor as well as to localities in the area has been facilitated by the toll motorway (Dakar – Diamniadio). The other means of communication are made up of the national road, tracks making it possible to join isolated areas, in particular fields, orchards, henhouses and villages. The extension of the toll motorway with the Diamniadio – Diass motorway under construction will help facilitate direct access to the new Blaise Diagne International Airport (AIBD).

In the outlook, note should be taken of the regional express train (TER) project which will connect the Dakar region to the AIBD via Diamniadio which will be served at the emblematic Diamniadio station.

The urban pole is accessible by the toll motorway which horizontally separates the pole from North to South. Inside the axis of 70 m which separates Arrondissements 2 and 3 from Arrondissements 1 and 4 vertically, a road is being built by the company CSE. The Germe de Ville loop that surrounds the heart of the center is under construction with the company SOTRACOM. All other road works and miscellaneous networks are entrusted to the company ECOTRA.

Among the networks operated by dealers, we can cite:

- The Lac de Guiers supply pipe (ALG 1) DN 1100 and another pipe connecting to the ALG 1 (DN 800) operated by SDE;
- A medium voltage electricity network (30kvA) operated by SENELEC;
- A gas line located north of the site at the limit of the pole;
- The toll highway.



5.4 Jobs

In the Dakar region, the population of working age is estimated at 2,291,411 in 2019 compared to 2,243,217 in 2018. As in the general population, women appear to be more numerous than men and it is noted that the working population is growing. from year to year, which implies that the level of absorption of the labor market is still low.

Due to the absence of labor market characteristics in Dakar, we will characterize the labor market in Senegal. The unemployment rate is estimated at 24.1% in the fourth quarter of 2021, an increase of 7.8 percentage points compared to the last quarter of 2020. Unemployment is higher in rural areas where the rate is estimated at 29 .8% against 19.1% in urban areas. By gender, unemployment affects women more (35.8%) than men (13.0%). More than half (55.8%) of the working-age population (15 years or older) participated in the labor market in the fourth quarter of 2021. The activity rate fell by 2.1 points percentage compared to the same period in 2020 and varies according to the place of residence, with a level of 57.2% in urban areas, against 54.3% in rural areas. According to gender, it is higher among men (64.5% against 48.8% for women).

5.5 Quality of products available in local markets

Like in developing countries, the local market in Senegal is mainly characterized by the predominance of the informal sector in several regions, presenting products with mediocre or inferior quality.

The formal market in Senegal is concentrated in the Dakar region, which is characterized by the presence of modern processing units, as well as supermarkets and hypermarkets selling products imported from Europe and products that meet health standards and requirements. .

On the other hand, the consumption of agricultural products is oriented towards urban (informal) markets mainly because of the relatively low prices compared to prices in formal markets.

At the level of the processing plants, the heterogeneity of peasant production was managed with mixed success by carrying out sorting at the entrance, cleaning at different stages of the process and verification

at the exit. However, these actions could not solve the lack of homogeneity of the raw material or the contaminations.

This situation limited the performance and competitiveness of Senegalese agricultural products. It resulted in low prices for producers, low productivity of processing units and marketing made difficult by the variable quality of the product and strong competition from imports of more homogeneous quality.

The meat and dairy sectors focus on short-cycle farming in semi-intensive and intensive systems capable of producing sufficient quantities of quality products around major consumption centres. They are based on an improvement in the production and sales cycles.

A diversity of processing companies promote a diversified supply of processed products of increasing quality. These companies represent an essential element of the agro-industrial sector, valuing primary productions, creating agricultural and non-agricultural jobs, in particular for rural women and young people.

5.6 Accessibility of farmers to cold chain infrastructure

Rapid access to the cold chain is an essential requirement for agribusinesses and farmers to take advantage of the growing demand for fresh produce in national and international markets that demand consistent quality, large volumes and high levels of Food Safety. Access to first-mile cold chain and certification-ready facilities offers agribusinesses the ability to reduce post-harvest losses and store, consolidate and process produce from multiple farmers.

Despite this, the cold chain system is still weak or even non-existent in some countries. A small percentage of all perishable product volumes in Senegal are refrigerated. As in most emerging markets, cold chain growth is fragmented, usually concentrated in urban centers, and cold storage capacity for fresh produce consists mainly of large packing warehouses with cold rooms. The storage capacity of cold rooms in Senegal is allocated mainly to seafood products, favoring the country's exports.

In rural areas, most farmers located in the first mile of distribution do not have the infrastructure necessary for the development of the cold chain. Additionally, most farmers do not have access to the cold chain due to their inability to invest capital in infrastructure or due to the lack of nearby cooling facilities, which means they are relatively disadvantaged in the supply chain.

6 Potential social impacts

6.1 Health and safety of site workers and users

6.1.1 During the construction phase

The risks of work accidents and damage to the health and safety of employees and populations will be linked to the construction of foundations, the construction of buildings, related infrastructure and fencing (elevation of walls, framework, coating) , related facilities, movement of vehicles and machinery, presence of site personnel, onlookers and job seekers as well as during maintenance of vehicles and machinery.

Accidents at work can be related to a shock, a fall, a slip, an injury, etc. or be the result of poor control of the operation of equipment and poor posture during manual and mechanical handling. For the risks of disease, factors such as dust, gases and odors can be identified, with risks of contamination by respiratory and eye diseases.

The impact of the construction phase on the population is of medium importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on the population is of medium intensity

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The effect of construction works on road traffic will be of medium significance, this impact may be reversible.

6.1.2 During the operation phase

During the operation phase of the project, the risk for the population will be linked to the movement of staff vehicles and refrigerated trucks.

The impact of the operation phase on the health and safety of workers and users of the site is of minor importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase on the health and safety of site workers and users is of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on the health and safety of workers and users of the site will be of minor significance, this impact may be reversible.

6.2 Habitat

6.2.1 During the construction phase

According to the site observations, the area development plan and the GIS analysis, there will be no potential impact of the project on the habitat since the area is already designed as an industrial zone.

The impact of the construction phase on the habitat is of minor importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction phase on the habitat is of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the construction phase on the habitat will be of minor significance, this impact may be reversible.

6.2.2 During the operation phase

According to the site observations, the area development plan and the GIS analysis, there will be no potential impact of the project on the habitat since the area is already designed as an industrial zone. However, the project will directly impact the availability of habitats in the area.

The impact of the operation phase on the habitat is of minor importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the exploitation phase on the habitat is of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on the habitat will be of minor significance, this impact may be reversible.

6.3 Public facilities

6.3.1 During the construction phase

According to the observations of the site, the development plan of the area and the GIS analysis, there will be no potential impact of the project on public facilities (Schools, Hospitals or others) since the area is already designed as an industrial zone where there are no public facilities, namely “electricity station or other public infrastructure” which may be directly or indirectly impacted by the project during the construction phase.

The impact of the construction phase on public facilities is of minor importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction phase on public facilities is of low intensity.

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Weak	Regional	Long	Mean
		Mean	Mean

		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the construction phase on public facilities will be of negligible significance.

6.3.2 During the operation phase

According to the observations of the site, the development plan of the area and the GIS analysis, there will be no potential impact of the project on public facilities (Schools, Hospitals or others) since the area is already designed as an industrial zone where there are no public facilities, namely "electricity station or other public infrastructure" which may be directly or indirectly impacted by the project during the operation phase.

The impact of the operation phase on public facilities is of minor importance following the assessments made in the following tables:

Degree of disturbance	**Component value**		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation phase on public facilities is of low intensity.

Impact intensity	**Scope of impact**	**Duration of impact**	**Meaning of potential impact**
Weak	Regional	Long	Mean
		Mean	Mean
		Short	Minor
	Local	Long	Mean
		Mean	Mean
		Short	Minor
	Punctual	Long	Minor
		Mean	Minor
		Short	Minor

The effect of the operation phase on public facilities will be of negligible significance.

6.4 Road traffic

6.4.1 During the construction phase

The circulation of construction trucks and transport of materials for the construction of the cold chain infrastructure will disturb the movement of the inhabitants a little. The increase in traffic could also locally increase emissions of dust and other solid particles and exhaust gases.

The impact of the construction phase on road traffic is of medium importance following the assessments made in the following tables:

Degree of disturbance	**Component value**

	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of construction works on road traffic is medium

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The effect of construction works on road traffic will be of medium significance, this impact may be reversible.

6.4.2 During the operation phase

Daily traffic related to the operation of the cold room will concern staff vehicles and refrigerated distribution and transport trucks. However, this impact will be moderate to minor as additional parking will also be provided for parking.

In addition to the fact that transport activities generate environmental impacts linked to greenhouse gas (GHG) emissions, transport can generate other impacts, known as societal, such as noise, deterioration of pavements, accidents in urban areas. Often presented in the background, these side effects represent a real financial but also human cost. Better control of travel is therefore an environmental and societal issue.

The impact of the operation phase on road traffic is of medium importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of mining works on road traffic is moderate

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The effect of the project operation phase on road traffic will be of medium significance, this impact may be reversible.

6.5 Jobs

6.5.1 During the construction phase

The construction of the cold chain infrastructure, sanitation works and roads will require the recruitment of skilled and unskilled labour. It is a job opportunity for young people looking for labourers. Thus, the works will generate direct and indirect jobs. It is a chance for local labor (from different localities due to the Commune of Parakou or surrounding Communes) because for these types of work, it is more prioritized. This labor will be more in demand for the actual construction work, painting, cleaning, glazing, security, etc. In total, from the preparation phase to construction, 100 jobs will be created.

The impact of the construction phase on employment is of medium importance following the assessments made in the following tables:

Degree of disturbance	Component value

	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on employment will be of high intensity

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Strong	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Major
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the construction phase is medium. It requires special mitigation measures. This impact is reversible.

6.5.2 During the operation phase

The project will generate multiple direct and indirect jobs. For direct jobs, there will be the recruitment of personnel who will have a direct link with the infrastructure, namely the shelving workers, the inventory manager and the manager. Indirect jobs will be created in the field of miscellaneous trade, miscellaneous consumer goods, provision of small services, catering, etc. which will be able to develop around the infrastructure in order to satisfy the needs of the workers. With this project, the promotion of this sector will encourage the creation of around 200 jobs, especially for young people trained in the logistics and cold chain sector. The activities, surveillance and guarding of the site will generate specific jobs on the site. Job creation is a direct and indirect positive impact. It is high intensity, given the high potential number of people to be employed. This staff will come from localities neighboring the site as well as from other localities in the country or even from outside, depending on the technical skills and expertise required. Therefore, the extent of the impact is considered regional. The jobs will last for the duration of the project.

The impact of the operation phase on employment is of major importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak

Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of mining works on employment will be very intense

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Strong	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Major
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the operation phase is major.

6.6 Accessibility of farmers to cold chain infrastructure

6.6.1 During the construction phase

During the construction phase, the project will have no direct or indirect impact on the accessibility of farmers.

6.6.2 During the operation phase

The commissioning of the cold chain infrastructure will increase the vision of the actors of the different sectors (Agricultural, Dairy products, meat and others) due to the modernity of the storage equipment for these products. So they will find pleasure and satisfaction.

The work planned as part of the modernization of the cold chain infrastructure will allow rational and optimal management of space. This would give a better organization and occupation of the space inside this infrastructure. Indeed, the markets may be equipped with an operational back-up plan in the event of an emergency. From a security point of view, farmers can access the storage premises by respecting the security codes which will be drawn up by the Ifria team. Thus, the lighting will have a deterrent effect in the fight against insecurity, banditry in the environment of the infrastructure. The technology to be deployed will considerably reduce the constraints formerly linked to the activity.

The operation of the infrastructure will generate gains which will be reinvested in the infrastructure with a view to improving its technological performance and renewing obsolete equipment.

The impact of the exploitation phase on the accessibility of farmers is of major importance following the evaluations carried out in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation of the infrastructure on the accessibility of farmers will be of high intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Strong	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Major
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the operation phase is major.

6.7 Quality of products available in local markets

6.7.1 During the construction phase

During the construction phase, the project will have no direct or indirect impact on the quality of products available on local markets.

6.7.2 During the operational phase

The agricultural products cold chain is a special supply chain system. The agricultural products cold chain is composed of agricultural producers (farmers/production base), agricultural product supply and processing companies, distributors, retailers and logistics companies, a service network farm-to-table logistics.

Specifically, the cold chain of agricultural products includes agricultural production, acquisition, sale of the pre-cooling process, transportation, storage, handling, transport, packaging, distribution, processing of circulation, information activities and other sectors, and aims to achieve organizational objectives and produce added value in the process.

The project will provide most of the added value of the cold chain process, namely: pre-cooling, storage, packaging and distribution using modern equipment and ensuring product quality (by reducing the percentage of post-harvest loss) passing through Ifria's cold chain infrastructure intended for the local market or the external market.

The impact of the exploitation phase on the quality of the products available on the local market is of major importance following the evaluations carried out in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak
Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the operation of the infrastructure on the quality of the products available on the local market will be of high intensity

Impact intensity	Scope of impact	Duration of impact	Meaning of potential impact
Strong	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Major
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the operation phase is major.

6.8 Quality of life of the population

6.8.1 During the construction phase

The project site is far from the homes of Diamniadio, it is located in the industrial zone of the new city. However, for users of the industrial zone, the work could cause some inconvenience (noise, dust, construction waste, etc.). In terms of environmental hygiene, the anarchic discharge of waste from the works (especially residues from the demolition of existing buildings) and from the site base could degrade the site or its environment.

The impact of the construction phase on the quality of life of the population is of medium importance following the assessments made in the following tables:

Degree of disturbance	Component value		
	Strong	Mean	Weak

Strong	Strong	Strong	Mean
AVERAGE	Strong	Mean	Weak
Weak	Mean	Weak	Weak

The impact of the construction works on the quality of life of the population will be of medium intensity

Impact intensity	Extent of impact	Duration of impact	Meaning of potential impact
Mean	Regional	Long	Major
		Mean	Major
		Short	Mean
	Local	Long	Major
		Mean	Mean
		Short	Mean
	Punctual	Long	Mean
		Mean	Mean
		Short	Minor

The significance of the potential impact of the project during the construction phase is medium. It requires special mitigation measures. This impact is reversible.

7 Reduction measures

7.1 Summary of impacts

Phase, project activities	Possible effects related to the project	Effect characteristics			
		Intensity	Extent	Duration	Significance
Construction phase	Climate	Weak	Punctual	Short	Minor
	Floor	Weak	Punctual	Short	Minor
	Surface water	Weak	Local	Short	Minor
	Underground waters	Weak	Local	Short	Minor
	Vibration	Mean	Punctual	Mean	Mean
	air quality	Weak	Local	Short	Minor
	Noise	Mean	Local	Short	Mean
	Wildlife	Weak	Punctual	Short	Minor
	Flora	Weak	Punctual	Short	Minor
	Odors	Weak	Punctual	Short	Minor
	Waste management	Weak	Punctual	Short	Mean
	Cultural properties	Weak	Punctual	Short	Minor
	Cultural landscapes	Weak	Punctual	Short	Minor
	Health and safety of site workers and users	Mean	Local	Short	Mean
	Road traffic	Mean	Local	Short	Mean
	Quality of life of the population	Mean	Local	Short	Mean
	Jobs	Strong	Local	Short	Mean
Operation phase	Climate	Weak	Punctual	Long	Minor
	Floor	Weak	Punctual	Long	Minor
	Surface water	Weak	Punctual	Long	Minor

	Vibration	Weak	Punctual	Mean	Minor
	air quality	Weak	Local	Short	Minor
	Noise	Weak	Punctual	Long	Minor
	Wildlife	Weak	Punctual	Long	Minor
	Flora	Weak	Punctual	Long	Minor
	Waste management	Mean	Punctual	Mean	Mean
	Cultural properties	Weak	Punctual	Long	Minor
	Cultural landscapes	Weak	Punctual	Long	Minor
	Health and safety of site workers and users	Weak	Punctual	Short	Minor
	Road traffic	Mean	Local	Short	Mean
	Jobs	Strong	Regional	Long	Major
	Accessibility of farmers to cold chain infrastructure	Strong	Regional	Long	Major
	Quality of products available on the market	Strong	Regional	Long	Major
	Quality of life of the population	Strong	Regional	Long	Major

7.2 Reduction measures

7.2.1 Air pollution

- Ensure proper maintenance and repair of equipment and machinery.
- Adopt a traffic management plan avoiding congested roads.
- Ensure vehicles and machinery are turned off when not in use.
- Hose down surfaces to control dust emissions
- Avoid burning materials resulting from site clearance.
- Make sure people working in dusty areas have PPE.
- Ensure the use of high quality diesel for generators and vehicles.
- Maintain a minimum traffic speed on the site and on access roads.

- Make sure building materials and hazardous substances are handled properly.
- Cover all vehicles transporting materials likely to generate excessive dust emissions.
- Water surfaces regularly to control dust emissions.

7.2.2 The water pollution

- Ensure that sediment and erosion control measures are installed.
- Follow guidelines and procedures for immediate cleanup of spills (oil, fuel, chemicals).
- Cover open stockpiles of building materials on site with tarps during storms to prevent building materials from being washed away.
- Install natural or synthetic liners under chemical storage tanks.
- Compact earthworks as soon as the final surfaces are formed to prevent erosion, especially during the rainy season.
- Be sure to grade gravel roads to maintain existing drainage patterns.
- Ensure the protection of riparian areas
- Take care to avoid the dumping of construction waste into waterways.
- Ensure that chemicals and materials used on the job site are properly stored.

7.2.3 Soil pollution

- Landscape excavated areas to allow native vegetation to grow back naturally.
- Suspend activities during extreme precipitation events
- Be sure to provide drainage channels and silt traps for all parts of the topsoil storage areas.
- Be sure to reclaim areas with topsoil and revegetate them after activities are completed.
- Use non-toxic and readily biodegradable chemicals on site when possible.
- Install natural or synthetic liners under chemical storage tanks.
- Level unpaved roads

7.2.4 Vibes

- Choose intrinsically silent equipment
- Keep equipment speed as low as possible
- Minimize idling time for pickup trucks and other equipment.
- Limit working hours on site when possible
- Ensure that all workers exposed to environmental noise are equipped with appropriate hearing protection and PPE.
- Schedule noisy activities during the morning hours
- Set up noise monitoring
- Inform the local population when loud activities are planned.
- Properly use and maintain mufflers that reduce vibration from construction machinery.
- Use only well-maintained mechanical equipment on the job site.

7.2.5 Climate change

- Use machinery and vehicles in good working order
- Ensure regular maintenance and technical inspections of construction machinery and vehicles

7.2.6 Hydrological characteristics

- Use vehicles in good working order to carry out the work
- Provide the site with garbage bins for the pre-collection of household waste
- Have on each site a sealed space for handling used oils
- Take preventive measures to avoid accidental spills of effluents when emptying septic tanks
- Provide oil absorption devices in case of accidental spillage
- To avoid disruption of the surface water flow system, the substation's concrete areas will be limited to runways and handling areas.

7.2.7 Wildlife

- Avoid killing any wild animal during the work;

- Avoid killing any wild animal caught during the work and keep it away from the site;
- Do not expose food or attract prey to avoid attracting predators (snakes among others) to the site;
- Physically protect construction sites against snakes;
- Avoid the elimination of wild animals during the work;
- Prevent any hunting activity
- Be sure to report wildlife species of high conservation value.
- Avoid any direct or indirect impact on areas of high ecological value.
- Ensure sustainable management of solid and liquid waste from construction and operating activities.
- Ensure that exterior lighting on construction sites is discreet and switched off when not needed.
- If these measures described above are taken into account, they will partially reduce the impacts during the operation phase.

7.2.8 Flora

- Reduce the direct destruction of vegetation as much as possible by delimiting the surfaces of construction sites, barracks, access tracks and sites for the storage and extraction of construction materials to the strict minimum and by concentrating all activities within these sites.
- Identify and clearly delineate the sites (marking them with ribbons, informing the workers) and the areas not to be damaged, considering their ecological value (denser vegetation, etc.).
- Take all preventive measures to avoid damaging the surrounding environment, in particular agricultural land;
- Protect the species present;
- Carry out the adjustment and restoration of the premises after the work.

7.2.9 natural landscape

- Reinforce the presence of visual plant screens vis-à-vis the landscape of the area and the axes of communication of rural localities.
- Reinforce the plantations at the level of the fence taking into account the orientations of the prevailing winds and constitute a diversified and coherent screen fitting into the landscape.

7.2.10 Noise

- Use equipment with low noise emissions, as indicated by the manufacturers.
- Properly adjust and maintain all vehicles and machinery.
- Where possible, conduct construction activities during daylight hours to minimize disturbance to humans and wildlife.
- Limit working hours to 7 a.m. - 7 p.m. when activities are very noisy.

All costs included in the contract value as general maintenance of the site.

7.2.11 Population

- Provide staff with adequate Personal Protective Equipment (PPE) (helmets, safety shoes, boots, etc.)
- Provide the site with an infirmary and first aid equipment;
- Raise awareness among employees and local populations on hygiene, health and safety at work;
- Develop and apply a Health, Safety and Environment Plan (PHSE);
- Train employees in safety and risks and ensure compliance with the wearing of personal protective equipment (PPE) on construction sites;
- Put up signs near the work areas (approximately 100m).

7.2.12 Road traffic

- Sensitize the local populations as well as the project drivers on road safety
- Put up signs to indicate the presence of the works.

7.2.13 Waste management

Identify all waste streams for effective management

- Manage waste based on the three Rs (reduce, reuse, recycle)
- Train all staff.
- Minimize the production of waste that must be treated or disposed of.
- Control placement of all construction waste (including spoil) in approved disposal sites (>300m from rivers, streams, lakes or wetlands). Deposit in authorized areas all waste, metals, used oils and surplus materials produced during construction, integrating systems for recycling and separation of materials. Identify and delineate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands).
- Sign a contract for the recovery and treatment of hydrocarbon waste, filters, irons, batteries and other non-biodegradable waste with a company that has an environmental permit
- Set up a concrete washing area for vehicles and machinery with an oil separator

7.2.14 Quality of life of the population

- Ensure sorting, collection and transport to the waste management center
- Inform and raise awareness among the personnel and users of the industrial zone
- Ensure the cleaning and removal of the site after the work.

7.3 Environmental and social programs, monitoring and follow-up

7.3.1 Construction phase

7.3.1.1 Environmental and social monitoring

Environmental and social monitoring

The purpose of environmental monitoring is to ensure compliance with:

- The measures proposed in the impact study, in particular the mitigation measures;
- Conditions set by regulations and the various standards;
- Commitments of the promoter in relation to the institutional actors concerned;
- Requirements relating to other laws and regulations in terms of hygiene and public health, management of the living environment of populations, protection of the environment and natural resources. Environmental monitoring will concern both the construction phase of the infrastructure and the operation phase.

During the construction phase, environmental and social monitoring must be carried out by a Control Office or Control Mission (MdC) whose main missions will be to:

- Ensure compliance with all current and specific mitigation measures for the project;
- Remind contractors of their environmental obligations and ensure that these are respected during the construction period;
- Write environmental monitoring reports throughout the work;
- Inspect the work and request the appropriate corrective measures if necessary;
- Write the final report of the environmental monitoring program during the period.

7.3.1.2 Environmental and social monitoring

Environmental monitoring will make it possible to verify, in the field, the accuracy of the assessment of certain impacts and the effectiveness of certain mitigation or compensation measures provided for in the ESIA, and for which uncertainty remains. The knowledge acquired with the environmental monitoring will make it possible to correct the mitigation measures and possibly to revise certain measures taken by the proponent in terms of environmental management. It will be ensured by the Environment Expert that Ifria will recruit to lead the Environment Unit.

7.3.2 Areas of environmental and social inspection

During the works, monitoring will include the effectiveness of the implementation of the mitigation measures retained in the environmental and social surveillance and monitoring programme. Aspects that should be monitored include:

In the construction phase:

- Gear movement
- Origin of building materials
- Protection of personnel against the raising of dust
- Soil erosion during excavations
- Waste management
- Hygiene and safety on the construction site

In operation phase

- Air quality
- Quality of stored products
- Operating personnel and accidents
- Fire fighting device
- Energy consumption
- Control of the cold chain

7.3.3 Environmental and social monitoring indicators

Indicators are parameters whose use provides quantitative or qualitative information on the environmental and social impacts and benefits of project activities. Monitoring of all biophysical and socioeconomic parameters is essential. It is suggested to follow the main elements indicated in the following tables:

7.3.3.1 During the construction phase

Table 2: Monitoring indicators during the construction phase

Item to check	Indicators	Monitoring manager	Implementation deadline
Gear movement	• Speed Limit • Machine parking	Ifria environmental expert	During the works
Origin of building materials	• Number of sites authorized to operate • Number of suppliers	Ifria environmental expert	Before the works
Protection of personnel against the raising of dust	• Number of masks • Number of agents sensitized	Ifria environmental expert	During the works
Soil erosion during excavations	• Foundation design	Ifria environmental expert	Before the works
Waste management	• Quantity of waste evacuated to the CET	Ifria environmental expert	During the works
Hygiene and safety on the construction site	• Number of PPE provided • Safety instructions	Ifria environmental expert	During the works

Item to check	Indicators	Monitoring manager	Implementation deadline
	• Number of accidents		

7.3.3.2 During the operation phase

Table 3: Monitoring indicators during the operation phase

Item to check	Indicators	Tracking frequency
Air quality	• Compliance of the refrigerants used	Annually
Operating personnel and accidents	• Number of officers with appropriate PPE • Safety instructions • Number of accidents	Daily
Energy consumption	• Insulation system performance	Monthly
Control of the cold chain	• Compliance of the links in the cold chain monitored	Daily
Quality of stored products	• Storage temperature compliance • Room sanitation	Daily

7.4 Institutional capacity building and communication plan

The effectiveness of the consideration of environmental and social issues in the implementation of project activities requires training and capacity building of the actors involved. These are the actors in charge of the execution of the project, the follow-up and the monitoring of the mitigation measures identified. It is also about the users of the platform and the local populations of the site.

For the proper execution of the measures contained in the program and environmental and social monitoring and the monitoring of their application, it appears necessary to take into account the fact that the technical capacities for implementing the various measures to mitigate negative impacts and monitoring are not the same for all categories of actors. To this end, it is important to develop a program to strengthen the institutional capacities of the external structures (DPM, National Hygiene Service) called upon to monitor the implementation of the programme. This capacity building program should be based on information and awareness campaigns on environmental management; good environmental practices; health and safety measures, etc.

During the works phase, the Promoter will be supported in environmental monitoring by a control office with an HSE expert specializing in the implementation of environmental and social management plans. In addition, the staff that will be hired as part of the works must be trained and made aware of good practices and health, safety and environmental measures.

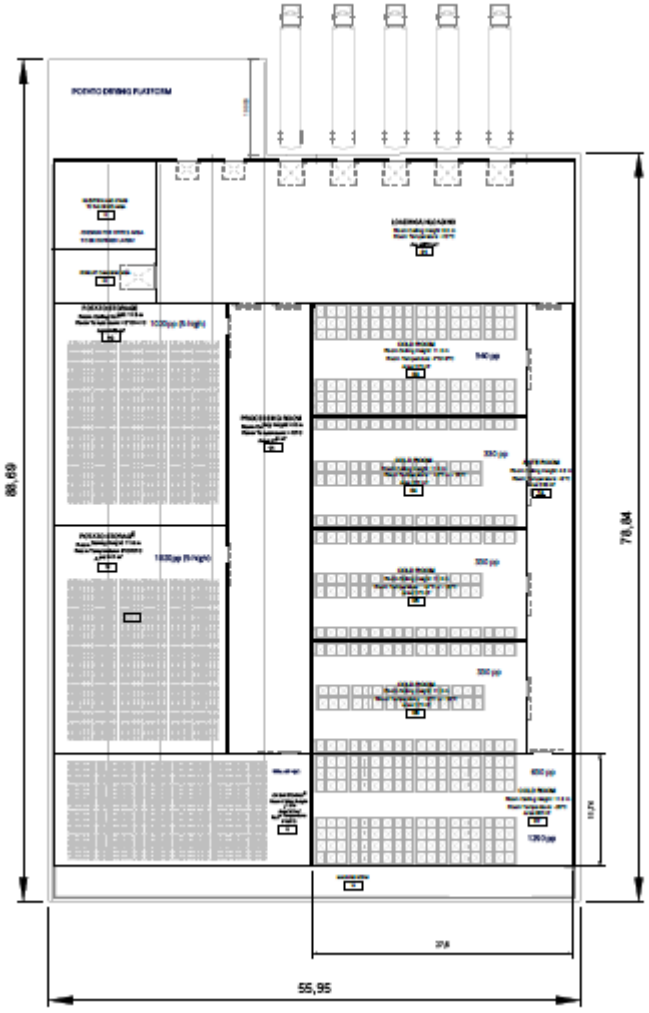
In the operational phase, Ifria will have to recruit an HSE specialist to monitor the implementation of the program and environmental and social monitoring.

Ifria will also have to train staff in health/safety/environment and energy management. He must see to the establishment of a hygiene, health and safety committee for working conditions.

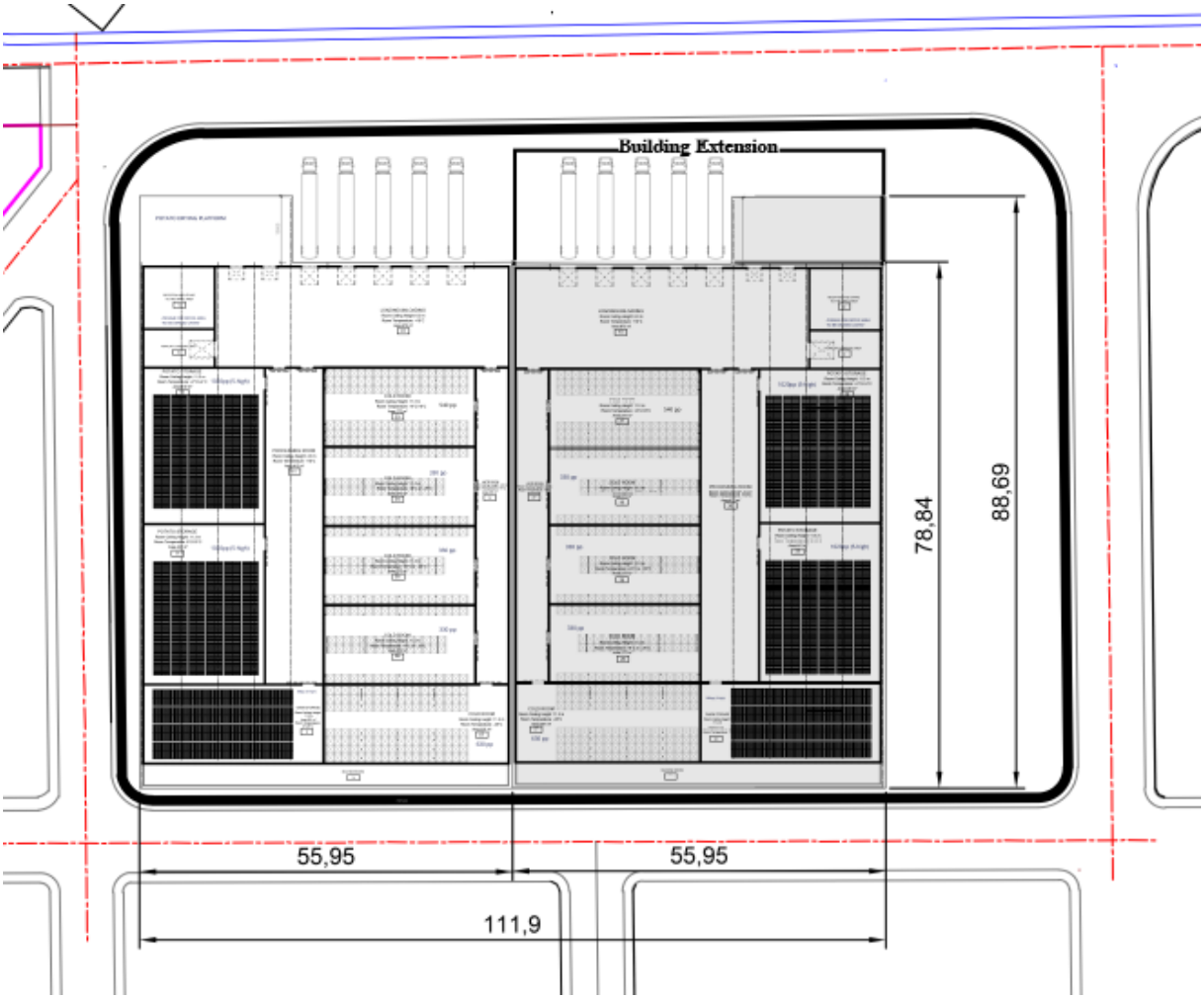
Ifria will have to coordinate the implementation of communication, information and awareness campaigns for local populations, particularly on the nature of the work and the environmental and social issues during the implementation of project activities.

Appendix: Project outline

7.5 Phase I



7.6 Phase I and Phase II



ENVIRONMENTAL AND SOCIAL DUE DILIGENCE DISCLOSURE REPORT

AFRICA – IFRIA

Project Description

IFRIA Cold Chain Development Company ("Company" or "IFRIA") is an integrated cold chain logistics development platform that develops and operates temperature-controlled logistics ("TCL") assets in North and West Africa where cold chain logistic operations are immature. These assets range from added-value cold storage logistic warehouses for perishable products to first-mile cold chain at the production and farm level.

The newly established platform aims to address the significant gaps in the TCL market by developing green field facilities and acquiring and expanding existing facilities to provide a network of temperature-controlled warehouses that will support the local, import and export market in each country by providing access to cold chain services that meet international standards. Locally, this will allow small producers / farmers to reduce waste, improve the quality of their products and enable access to international markets via access to preservation and storage services. Depending on the location, these hubs will act as a logistics platform for importers and exporters improving access and trade within the African Continent.

Investment Case

Pegasus Capital Advisors is considering an equity investment with specific use of proceeds to support IFRIA's first round of investments in Morocco and Senegal between 2023 and 2025. These may include brownfield (acquisitions) and greenfield (new developments/ construction) assets.

All facilities will (initially) connect to the national grid but also have a programme of rooftop solar in the site development plans which are expected to (in-part) replace the grid power. With these investments IFRIA is looking to provide (i) warehousing (storage, handling), (ii) transportation[1] (long haul, distribution) and (iii) value added services (e.g., classification, pre-cooling, labelling, packaging, picking, documentation) to a variety of customers in the modern grocery retails, hotels & restaurants, pharmaceutical industries, agriculture production and fishing companies.

Intended beneficiaries

The lack and immature nature of TCL in North and West Africa causes high post-harvest losses for farmers and small producers resulting in loss of income, increased food insecurity, lower quality produce, poor resource efficiency, etc. In Morocco and Senegal, food waste includes agricultural products such as fruit, vegetables, poultry, red meat, dairy products and fish. In addition, this lack of service results in an uncompetitive environment for exports of perishable goods as international standards are often not met.

The Company helps to solve these issues by providing the opportunity to create a coherent network of highly efficient cold chain logistic hubs in Africa built to international standards. The platform will utilize

[1] Current strategy in Morocco is for Ifria to outsource transportation to reliable suppliers rather than own vehicles in house and in Senegal there may be some initial ownership of vehicles, but the intention is again to outsource as reliable providers are identified.

a market systems approach to meet the needs of farmers who do not have access to cold chain solutions in order to help keep their products fresh, increase shelf life, and reduce post-harvest losses.

The investment aims to build a capable TCL platform in Africa that will develop and operate a network of efficient temperature-controlled warehouses to help reduce food wastage, improve local farmer and small producer livelihoods as well as increase food security, food quality and export competitiveness.

The platform will start with projects in Senegal and Morocco, and aims to expand to other African countries. Beneficiaries include the people that have access to the platform and cold chain solutions, such as agricultural producers and distributors that benefit from improved market access and livelihoods, as well as citizens and communities that benefit from products for local consumption in terms of quantity and quality of food produced to ensure food and nutritional security. In addition, reduced food loss leads to reduction of waste and emissions from landfills. Key benefits for intended beneficiaries of the project are expected to include:

- **Climate & Sustainable Cities / Communities:**
  - Platform expected to mitigate greenhouse gas and carbon emissions via (1) reduction in methane emissions from landfills by reducing post-harvest losses and food wastage by providing cold chain logistics and storage solutions currently not widely available; and (2) reduce emissions from transportation where the current solution for several perishable products is to be shipped and stored in Europe, and then shipped back.
  - Energy efficient solutions (insulation, renewable, operational, processes, etc.) to be installed and implemented in all facilities (acquisitions & greenfield).
- **Improve local sustainability and job creation:**
  - Platform will create direct jobs for development, construction, operations, and maintenance as well as indirect jobs (i.e., value add services, transport, handling, distribution etc.).
  - Increased agriculture yield (for farmers) and shelf life of perishable products (for stores/supermarkets) thus reducing production/post-harvest loss and wastage. This boosts both farmer and store incomes through efficient use of inputs.
  - Improved resource efficiency from production to use consequently reducing pressure on the ecosystem.
- **Citizens with improved living conditions via food security, enhanced safety, and quality retention:**
  - Improved product life cycle and ensures that products maintain their freshness and quality for the longest duration through proper handling and storage.
  - Improved nutrient retention / quality of perishable goods and food safety via use of international processes to store food. This leads to improved nutrition.
  - Reduce public sector health cost and improve healthcare offering of pharmaceuticals via appropriate storage methods.
- **Sustainable economic growth:**
  - Value-added goods/services (e.g., food processing, labelling, goods handling, packaging, pre-cooling, etc.) will help local farmers access international markets.
  - Offer improved quality products and international food handling standards that will help farmers meet international market requirements boosting exports.

Duration of the proposed sub-project

Ifria is a platform investment, rather than a single project, that SCF expects to develop, grow, and provide equity financing for during the holding period, expected to be between 7 to 10 years. The investment team estimates to maintain the investment in Ifria throughout the development, construction and expansion of the facilities and exit the platform once full operational utilization has been achieved, depending on market appetite. It is assumed that the platform acquirer would continue to operate and maintain the facilities as a going concern. Nevertheless, SCF has the flexibility to maintain the investment for a longer period given that the facilities have a life of 30 years or more.[2]

Scope of Review

Pegasus' environmental and social due diligence (ESDD) and appraisal included:

- A review of environmental and social (E&S) documentation (incl. EHSS Guide, Warehouse Guides, Stakeholder Engagement documentation, etc.) and due diligence by an independent third-party consultant
- A Reputational Risk Review (RRR)
- Amendment of the Environmental and Social Action Plan (ESAP)
- Review of existing Environmental and Social Impact Assessments (ESIAs), including mitigation measures for greenfield projects
- ESDD questionnaire and interviews with the management and employees

The appraisal focused on reviewing the E&S documentation, ESIAs, E&S mitigation measures and ESAP, corporate policies and procedures vis-à-vis federal, state, and municipal applicable legislation, IFC Performance Standards and applicable World Bank Group (WBG) EHS Guidelines, and Gold Standard.

A potential co-investor of this transaction has already conducted its Environmental and Social (E&S) virtual appraisal in November – December 2021 and included (i) meetings with IFRIA management team, including the Executive Managing Directors of Operations, Executive Director Investments, the Project Manager and two equipment suppliers; (ii) review of key E&S documents provided by IFRIA; and (iii) a virtual tour of brownfield facilities. Pegasus also reviewed the co-investors' due diligence materials.

Environmental and Social Categorization and Rationale

This is a Category B project according to the Subnational Climate Fund's Environmental and Social Management System, which is aligned with IFC' risk categorization. Based on information reviewed during appraisal, the project is designed, as described in the sections below, to avoid, minimize and manage E&S risks and impacts of the company's operations in compliance with national legal and regulatory requirements, IFC Performance Standards, and its own corporate policies.

Key E&S issues associated with this investment relate mainly to (a) company's E&S management systems and staffing to ensure development and operations of assets in line with IFC Performance Standards; (b) adequate E&S risk screening and assessments for proposed acquisitions and operations; (c) assurance of fair, safe and healthy working conditions for employees and contracted workers during construction and operation; (d) management of air emissions and wastewater from proposed operations; (e) workers and

[2] There can be no guaranty that the duration of the sub-project will have the duration described as transactions will be conducted on attractive terms.

community grievance mechanism; (f) security and traffic management; and (g) energy efficiency of the operations.

Reputational Risk Review

A RRR's objective is to assess a company's E&S Reputational issues using free public sources of information (Internet) in a methodological way. The Methodology includes:

- Google search using key words (such as "Company + Morocco + gas leak", "Company + Senegal + labour litigation", "Data center + Morocco + human rights", etc.)
- The screening of a set of strategic web sites (Land matrix, Environmental Justice Atlas, Global Forest Watch, WWF, Greenpeace, Human Rights Watch, Amnesty International etc.)
- Screening of Social Media platforms including Facebook and Twitter.

The RRR can extend to a particular sector and geography that are relevant for the target company. It can also extend to other specific matters that are relevant for the assessment (Corruption Perception Index, Human Development Index, etc.).

The RRR of the Project covers the activities of IFRIA in Morocco and Senegal. There were no direct or indirect hits.

Environmental and Social Assessment and Mitigation Measures

The Subnational Climate Fund's appraisal considered the environmental and social management planning process and documentation for the project and gaps, if any, between these and the Subnational Climate Fund's requirements. Where necessary, corrective measures, intended to close these gaps within a reasonable period of time, are summarized in the paragraphs that follow and (if applicable) in an agreed Environmental and Social Action Plan (ESAP). Through the implementation of these measures, the project is expected to be designed and operated in accordance with IFC Performance Standards objectives.

PS 1: Assessment and Management of Environmental and Social Risks and Impacts

Environmental and Social (E&S) Policies and Management System: IFRIA has a corporate level Environmental Health, Safety and Social (EHSS) guide that serves as the E&S framework. The EHSS guide includes policies on construction phase mitigation measures, management of ammonia refrigerant gas, solid waste management, facility effluent management, carbon dioxide mitigation and ozone depletion mitigation, and environmental management systems. Social policies include gender equality, labor security, employee compensation, and contractor qualification and management. The policies will apply to all IFRIA operations and third-party suppliers and contractors. While these policies commit the organization not to undertake projects that unnecessarily harm the environment and have strong social attributes, IFRIA will amend the current E&S framework to meet the requirements of an Environmental and Social Management System (ESMS) aligned with IFC Performance Standard 1 and commensurate to the level of risks associated with the company's business activities. Specifically, the ESMS will include: an overarching policy statement; objectives and targets; the definition of an organizational structure and relevant roles and responsibilities. Corporate E&S management procedures to be developed and implemented as part of the ESMS include: (i) Labor and Human Resources Manual; (ii) Environmental Health and Safety (EHS) procedure; (iii) Occupational Safety and Health procedure; (iv) Waste Management procedure; (v) Emergency Preparedness and Response procedure; (vi) Stakeholder Engagement procedure that includes an External Communication and a Grievance Mechanism); (vii)

Security Management Procedure, (vii) E&S Risks and Impacts Screening and Assessment Procedure, and (ix) Contractor E&S Management Procedure incl. integration of E&S clauses into the bidding and/ or contracting process. The corporate procedures will guide the development and implementation of the required E&S assessments and management plans at the project level, both for acquisitions and for new facilities during construction and operations (ESAP #1).

Identification of Risks and Impacts: General Environmental and Social risks are outlined in IFRIA's EHSS guide. Furthermore, IFRIA will identify site-specific E&S risks and impacts through an E&S assessment process for construction and operation of the proposed greenfield facilities (ESAP #2). IFRIA will ensure that social aspects are included in the risk and impact identification and assessment to be carried out in compliance with PS1 and applicable national requirements in Morocco and Senegal. Disclosure and consultation will be carried out per local requirements and in line with the requirements of PS1 and will be reflected in the Stakeholder Engagement Plan for the project (see ESAP #1 for the corporate procedure).

At the present time, the ESIA and ESMP exist for the following greenfield assets that are already identified:

- Souss-Massa (Morocco):
  - ESIA/ ESMP in French: https://d1xeoqaoqyzc9p.cloudfront.net/app/uploads/2023/04/230331.Ifria_.ESIA_.Study_.OuledTeima_FR.pdf
  - ESIA/ ESMP in English: https://d1xeoqaoqyzc9p.cloudfront.net/app/uploads/2023/04/230331.Ifria_.ESIA_.Study_.OuledTeima_EN.pdf
  - ESIA/ ESMP in Arabic: https://d1xeoqaoqyzc9p.cloudfront.net/app/uploads/2023/05/230331.Ifria_.ESIA_.Study_.OuledTeima_AR.pdf
- Diamniadio (Senegal):
  - ESIA/ ESMP in French: https://d1xeoqaoqyzc9p.cloudfront.net/app/uploads/2023/04/20230331.Ifria_.ESIA_.Study_.DMO_FR.pdf
  - ESIA/ ESMP in English: https://d1xeoqaoqyzc9p.cloudfront.net/app/uploads/2023/04/230331.Ifria_.ESIA_.Study_.DMO_EN.pdf

IFRIA will conduct an ESIA and ESMP for all greenfield projects in compliance with national regulations and laws, and the reference framework of the Subnational Climate Fund at least 90 days prior to construction. For disclosure and transparency reasons, ESIAs and ESMPs are also disclosed on Ifria's and Pegasus' website.

In addition, IFRIA will conduct E&S assessments against IFC PS to identify any potential legacy E&S issues from brownfield operations to be acquired (ESAP #2). Given that the brownfield assets have limited adverse environmental and social risks and/or impacts, a full-scale environmental and social impact assessment is not required by the host country's environmental assessment laws and regulations. For these assets, IFRIA will conduct limited or focused environmental and social assessments that are narrower in scope than a full-scale ESIA and focus on potential legacy E&S issues from the existing facility that are specific to potential environmental and social (including labor, health, safety, and security) risks and/or impacts identified as associated with the project. For some of these assets, confirmation, and documentation of the application of environmental siting, pollution standards, design criteria, or

construction standards should be appropriate and required. Limited analyses and assessments have to be delivered 30 days prior to the actual acquisition of the brownfield assets. The scope will include:

1. Existence of an environment, social and health (EHS) management systems;
2. Labor and working conditions against IFC Performance Standard 2, especially on retrenchment, freedom of association, and occupational health and safety (working in cold conditions, etc.), labor audits;
3. Pollution prevention including solid & hazardous waste management, and effluent management;
4. Land contamination investigations and assessments, resettlement evaluations;
5. Traffic studies along transport corridors;
6. Impact of facilities on communities if the facility is with outside the industrial zone.

At the present time, there are no brownfield acquisitions.

Organizational Capacity and Competency: IFRIA is a new company, although the four partners have many years of experience in TCL. In the current set up, the Executive Managing Director Operations and the Project Manager are responsible for E&S during operations and maintenance (O&M). The company does not have a trained environmental, health and safety professional to effectively discharge this function and coordinate with other responsible officers in implementing the ESMS. Given the planned operational expansion across various countries, IFRIA understands the need for a more formal E&S management organization and will assign a corporate level E&S Manager, to coordinate the implementation of the ESMS and effectively oversee E&S risk and impact assessment and management during project development and implementation and during routine operations and to carry out contractor E&S supervision. IFRIA will also ensure each facility has an EHS officer. (ESAP #3).

Emergency preparedness and response plan: IFRIA has an emergency management policy that requires the company to have (i) an evacuation plan, (ii) fully stocked first aid kits that are easily accessible for all offices, and warehouses, (iii) designated workers to perform leadership roles, and (iv) designated assembly points. IFRIA will further operationalize this policy by developing an emergency preparedness and response plan at each facility as part of ESAP #1. The plan for the warehouses will include (i) the designation of an emergency committee responsible for first aid and fire prevention, (ii) identify areas where accidents and emergency situations may occur, the response procedures (for fire, earthquake, flood and hurricanes, civil unrest and theft), (iii) provision of periodic emergency preparedness training (annual) and fire drill (semester) to personnel and contractors, including the participation of the Local Fire Department, and (iv) ensuring existence of clear marking of evacuation routes and assembly points as part of the evacuation plan.

Monitoring and Reporting: As part of the draft EHSS guide, IFRIA intends to develop environmental and social monitoring indicators to be calculated and audited on a yearly basis. As part of ESAP #1 and the ESMS, IFRIA will develop an internal monitoring system which will include the monitoring of key KPIs such as air emissions (point source and ambient), energy utilization and refrigeration gases, compliance with national OHS requirements, including accident rates (lost-time accidents), primary suppliers risk assessment and management, and contractors' EHS performance.

Stakeholder Engagement Plan: As part of ESAP #1, the company will develop a stakeholder engagement plan and consultation in accordance with the Subnational Climate Fund's stakeholder requirements. Further, IFRIA will develop and implement a documented grievance mechanism for local community to receive and address any concerns or complaints from interested or affected stakeholders. IFRIA will

ensure the mechanism is able to receive anonymous complaints and provide confidentiality to any community member who registers grievances, and in particular, respond in a survivor centered way on any complaints of Gender Based Violence (GBV).

PS 2: Labor and Working Conditions

Human Resource Policy & Procedure: During operations, IFRIA is envisioning a workforce of about 260 direct and indirect workers, incl. during construction phase (50% male and 50% female). IFRIA has prepared a social and human resources guide. The guide has policies on employee rights, code of conduct to be signed by every employee, disciplinary procedures, grievance management and a monitoring process of social indicators. The HR policy commitments include, fair, safe, and hygienic working conditions, fair living wages, working hours and benefits, non-discrimination, or harassment (including sexual harassment), prohibition of child and/or forced labor, etc. While the policies are consistent with the requirements of PS2 and national labor laws, the company will develop an HR Manual and relevant Procedures guided by its policies and IFC PS2, also including respect for collective bargaining and freedom of association, workers' access to grievance mechanism, equal opportunity, and measures to prevent and address gender-based violence (ESAP #4).

Workers' Organizations and Grievance Mechanism: IFRIA's social and human resources guide commits the organisation to comply with national legislation and to provide workers with freedom of association. The company will not discourage workers from electing representatives, forming, or joining employee organizations of their choice, nor will it discriminate or retaliate against workers who participate or seek to participate in such organizations and collective bargaining agreements. Various staff communication channels for grievances are listed in the guide. However, IFRIA will develop and implement a worker grievance procedure compliant with PS2 as part of ESAP #4. The procedure will apply to all operations, and accessible to contracted workers, and will include (i) alternative platforms for submitting a grievance, (ii) provision for both anonymous and gender specific complaints and (iii) provision for third party mediation and arbitration should it not be possible to resolve the grievance internally.

Occupational Health and Safety: Occupational health and safety (OHS) risks associated with TCL and distribution are largely limited to forklifts accidents, working in cold temperatures, slips/ falls and road safety. IFRIA has made a strong commitment to ensure safe working conditions of all its workers and contractors in warehouses in its EHSS guide. To operationalize its policy, the company will develop a corporate Occupational Health and Safety (OHS) procedure aimed at (i) achieving a safe and accident-free workplace in all offices, warehouses, and during transportation of goods, (ii) incorporating OHS principles in project planning and work activities, (iii) ensuring identification and management of OHS risks in the workplace, including incident reporting and tracking, (iv) monitoring and reviewing implementation of OHS management measures and corrective action plans and (v) worker OHS training programs. The scope of the procedure will include both employees and contracted workers. (ESAP #5). The warehouse managers will be trained and tasked with enforcing OHS requirements and ensuring employees and contracted workers' health and safety.

Fire prevention, protection, suppression, and control measures will be included in the design of the warehouses, which will be designed, constructed, and operated by competent professionals in accordance with design standards and GIIP, taking into consideration safety risks. IFRIA will commission a local L&FS expert to conduct annual L&FS audits and ensure the warehouse managers implement any corrective action plans from the L&FS inspection. (ESAP #6)

The company will commission contractors for the construction of the new warehouses in Morocco and Senegal. IFRIA will develop and monitor the implementation of EHS management plans by the contractors, in line with national's OHS laws and IFC PS2 as part of ESAP #5. The plans, among other measures, will include procedures for managing and monitoring OHS performance of the construction contractors by IFRIA team and will ensure that such requirements are contractually biding for the contractors. IFRIA will also ensure that contractors do not hire child or forced labor.

Workers Engaged by Third Parties: The company has developed a contractor management guide that provides for documentation of contractor information, however, does not provide any detail on how potential third-party service providers are vetted or monitored. Furthermore, it does not detail how IFRIA's E&S policies and procedures are applicable to third party service providers. As part of the project, IFRIA will develop and implement a contractor selection and management process that will include the vetting and ongoing monitoring of contractors' safety, compliance with labor law, and compliance with IFRIA policies. In addition, IFRIA will ensure that all contracted workers have access to the IFRIA worker grievance mechanism should the contractors not have a suitable internal procedure available. (ESAP #7)

PS 3: Resources Efficiency and Pollution Prevention

Resources Efficiency and Greenhouse Gas (GHG) Emissions: As the IFRIA's warehouse facilities under the proposed investment will be located in industrial zones, electricity will be provided by the national distribution grid. IFRIA also intends to install solar panels. There will be back-up generators in case of power outage. Energy consumption will be monitored closely, and data on electricity and diesel/gas consumption will be reported annually. The company aim at implementing energy efficiency measures to reduce its operational cost and, as part of ESAP #1, will develop a Resource Efficiency and Refrigerant Gas Management Plan which will include measures to reduce energy, water and material consumption (including refrigerants).

The annual total greenhouse gas (GHG) emissions of the proposed acquisitions and greenfield based on electricity use (scope 2) are estimated at 2,283 tons of CO_2-equivalent. GHG emissions are attributable mainly to the use of refrigeration units; and secondarily to the use of fuel for vehicles (as many of them are equipped with natural gas engines). In the cold chain sector, refrigerants play a vital role but pose environmental risks. Some refrigerants contribute to global warming and ozone depletion, leading to severe consequences. Natural refrigerants like ammonia and hydrocarbons have low GWP but may pose toxicity and flammability risk. The most commonly used refrigerants in the past, such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), have been phased out due to their harmful impact on the ozone layer. Both Morocco and Senegal are signatories to the Montreal Protocol and are committed to phase-out of CFCs and HCFCs by 2030. IFRIA aims to only use natural refrigerants and mostly ammonia which is a natural refrigerant. Natural refrigerants are generally considered to have low or zero Global Warming Potential (GWP) compared to synthetic refrigerants like HCFCs and hydrofluorocarbons (HFCs), which have much higher GWPs. For the two identified greenfield projects, the company proposes to install new equipment which will use ammonia gas, which is more energy efficient. The company considers coefficient of performance (COP) to choose the highest efficiency/ lowest energy consumption refrigerants. IFRIA has not yet formalized a corporate policy or procedure that would be applicable to both greenfield and brownfields projects. Therefore, IFRIA is required to develop a corporate Resource Efficiency and Refrigerant Gas Management Plan (ESAP #8) for both greenfield and brownfield investments which includes policies and procedures for (i) overall resource efficiency strategy for refrigerant gas usage and leakage reduction, (ii) regulatory compliance (e.g. Montreal protocol and Kigali amendment), (iii) assessment of refrigerants to avoid high GWP

refrigerants, (iv) refrigerant inventory and tracking incl. usage, storage, and disposal, v) OHS risks mitigation measures. With the Resource Efficiency and Refrigerant Gas Management Plan, IFRIA can effectively address risks, mitigate environmental impacts, and ensure compliance while maintaining efficient operations.

As part of the IFRIA's management of ammonia refrigerant gas guide, the company has indicated to undertake two inspections per day and regularly checks of the refrigeration equipment. An automatic monitoring system will be installed, and a dashboard will display any anomaly. The staff responsible for refrigerator maintenance will undergo relevant training, including safety instructions. IFRIA will ensure that the regular service of refrigerating equipment will be outsourced to a licensed company. All the relevant procedures, including monitoring and control of leakages and safety procedures, will be included in the Resource Efficiency and Refrigerant Gas Management Plan.

Pollution Prevention: Wastes from the IFRIA warehouses are and will be characterized as organic waste, mainly food wastes, solid waste (cardboard, nylon, packaging materials, metal, plastic, etc.), and hazardous waste (light bulbs, used oil and clothes, diesel tanks, chemical containers, batteries, refrigerant waste etc.). IFRIA has developed a standard solid waste management guide to provide on how solid waste is stored in designated areas, collected periodically, and disposed by authorized service providers. During construction, the EHS management plan for the construction phase will include the relevant waste management measures. Under ESAP #1, the company will develop a corporate Waste Management Procedure and relevant plans at the facility level. This should also include appropriate management and storage of chemicals.

The facilities will be located in zoned industrial area with established sewer lines and a water treatment facility. Sanitary effluents at the warehouses will be connected to the sewer lines. IFRIA's E&S guide includes an upgrade to all brownfield facilities programme which includes investment in water treatment facilities (in partnership with industrial zones tenants).

PS 4: Community Health, Safety and Security

As indicated under PS1, IFRIA's warehouse facilities will be located in industrial zones. As an integrated cold chain company, IFRIA will provide warehousing and storage solutions for the cold chain and will support transportation and distribution logistics. As such, risks and potential adverse impacts to surrounding communities are expected to be limited, and mainly related to an induced increase in road transport between the warehouses and point of sale. IFRIA will ensure drivers of its transport contractors will undergo defensive driver training and will ensure that a road safety plan is implemented, including vehicle maintenance and inspection program. (ESAP #9).

In addition, HACCP and ISO 22000 requirements include putting in place safeguards and procedures in order to ensure the proper management of food safety issues associated with storage operations. IFRIA has put in place a comprehensive framework as part of its quality control measures and E&S guide, ensuring the establishment of procedures aimed at recall of products, control of the respect of storage conditions in terms of space, separation of products and temperature control.

Security Personnel: IFRIA facilities will be within industrial zones which will have their own security, including security forces provided by the Government. IFRIA will employ unarmed security personnel for access control and guarding of property. As part of this project, and guided by safety and security management guidelines, the company will assess risks posed by the proposed security arrangements and

develop and implement a Security Management Plan (SMP). The SMP will include a training module for company's management and security personnel and be aligned with PS 4 (ESAP #10).

PS 5: Land tenure and Physical/ Economic resettlement

According to the IFC PS 5, IFRIA must ensure that the completion of resettlement processes is effective, and that no ulterior litigations or claims to land property are at risk of being made by potential affected parties in the future. However, such a procedure is not in place in IFRIA's E&S guide or other documentation such as the ESIAs. Even though IFRIA's projects are in industrial zones and resettlement issues are low, ESAP#2 should make sure that IFC PS 5 is addressed.

Gender assessment

Gender Action Plan: In Africa, the vast majority of women work in the informal sector, with precarious and poorly paid jobs, and only a small minority of them reach high positions. There is also a high unemployment rate in Africa among young people. IFRIA will conduct a gender assessment and develop a Gender Action Plan to meet at least one 2x challenge criteria for entrepreneurship, leadership, employment or consumption. The Gender Action Plan will outline targets, performance indicators, and measures. (ESAP #11).

Climate change related risks

A vulnerability risk assessment was conducted as part of the due diligence. The following natural hazards in the context of climate change were discovered:

- High risks of wildfire (Ouled Teima, Diamniadio)
- High risks of extreme heat (Ouled Teima)
- Medium risks of water scarcity (Ouled Teima, Diamniadio)
- Medium risks of coastal flood (Diamniadio)
- Medium risks of landslide (Ouled Teima)
- Medium risks of extreme heat (Diamniadio)

IFRIA should take climate change related risks into account when developing or acquiring projects. Risks and insights can be further assessed when interacting with stakeholders.

Local Access of Project Documentation:

Contact Person: Mr. Mathew Muredith, Executive Managing Director Operations
Company Name: IFRIA Cold Chain Development Company
Wilmington, Delaware, USA
Email: matthew.meredith@lixcap.com/ contact@ifriacold.com
Phone: +1 202 550 5627

ENVIRONMENT AND SOCIAL ACTION PLAN (ESAP)

ESAP #	Task Title & Description	Indicator of Completion	Required Completion Date
1.	PS1: Environmental and Social Policies: Amend existing E&S framework and/ or develop a corporate level Environmental and Social Management System (ESMS) aligned with IFC Performance Standard 1 and commensurate to the level of risks associated with the company's business activities. Specifically, the ESMS will include: an overarching policy statement; objectives and targets; the definition of an organizational structure and relevant roles and responsibilities. Corporate E&S management procedures to be developed and implemented as part of the ESMS include: (i) Labor and Human Resources Manual (incl. ensuring human rights enforcement); (ii) Environmental Health and Safety (EHS) procedure incl. a dedicated sound chemicals management plan to ensure both environment and community safety; (iii) Occupational Safety and Health procedure (incl. safe chemical storage procedure); (iv) Waste Management procedure; (v) Emergency Preparedness and Response procedure; (vi) Stakeholder Consultation and Engagement procedure that includes an External Communication and a Grievance Mechanism and is in accordance with SCF requirements); (vii) Security Management Procedure, (viii) E&S Risks and Impacts Screening and Assessment Procedure (incl. procedure of check of the completion of resettlement/ compensation processes prior to land occupation if needed), and (ix) Contractor E&S Management Procedure.	EHSS Management System Manual Management Procedures # 1-9.	31 January 2024 31 January 2024
2.	Identification of Risks and Impacts: IFRIA will identify E&S risks and impacts through a E&S assessment process for construction and operation of the proposed greenfield facilities. IFRIA will ensure social aspects are included in the risk and impact identification and	(i) ESIA Reports for the facilities in Morocco and Senegal	31 October 2023 (at least 90 days prior to planned construction)

	assessment to be carried out in compliance with PS1 and the relevant and applicable national requirements in Morocco and Senegal. This also includes the assessment of IFC PS 5 to ensure completion of resettlement processes is effective, and that no ulterior litigations or claims to land property are at risk of being made by potential affected parties in the future. Pegasus' comments in ESIAs need to be addressed. Conduct an E&S due diligence to identify any E&S legacy issues from potential brownfield operations to be acquired.	(ii) Implementation of ESMP (iii) E&S Due Diligence Report for brownfield acquisitions	31 December 2023 at least 30 days prior to acquisition
3.	<u>PS1: Organizational Capacity and Competency:</u> Ensure each facility has an EHS officer once a facility is operational, to coordinate the implementation of the ESMS and effectively oversee E&S risk and impact assessment and management during project implementation and during routine operations and to carry out contractor E&S supervision. During construction phase an "Ifria Staff" will be assigned as an E&S Manager to implement and monitor the mitigation measures. Ifria will share with SCF the CV of the assigned person by December 31st 2023.	Job Descriptions CV for the candidate.	31 December 2023
4.	<u>PS2: Human Resource Policy and Procedure:</u> Develop an HR Manual and relevant Procedures guided by its policies and PS2, also including respect for collective bargaining and freedom of association, workers' access to grievance mechanism, equal opportunity, and measures to prevent and address gender-based violence	HR Manual of Procedures including a workers grievance mechanism	31 October 2023
5.	<u>PS2: Occupational Health and Safety:</u>	OHS Policy	31 October 2023

	Develop a corporate Occupational Health and Safety (OHS) procedure in line with PS2 aimed at (i) achieving a safe and accident-free workplace in all offices, warehouses, and during transportation of goods, (ii) incorporating OHS principles in project planning and work activities, (iii) ensuring identification and management of OHS risks in the workplace, including incident reporting and tracking, (iv) monitoring and reviewing implementation of OHS management measures and corrective action plans and (v) worker OHS training programs.	Contractor EHS Management procedure	31 October 2023
6.	<u>PS2: Life and fire safety:</u> Commission a local L&FS expert to conduct annual L&FS audits and ensure the warehouse managers implement any corrective action plans from the L&FS inspection.	Corrective Action plans Local fire certification.	31 December 2023
7.	<u>PS2: Workers Engaged by Third Parties</u> Develop and implement a contractor selection and management process that will include the vetting and ongoing monitoring of contractors' safety, compliance with labor law, and compliance with IFRIA policies. In addition, IFRIA will ensure that all contracted workers have access to the IFRIA worker grievance mechanism should the contractors not have a suitable internal procedure available	Contractor selection and management process Worker grievance mechanism	31 October 2023
8.	<u>PS3: Resource Efficiency and Pollution</u> Develop a Resource Efficiency and Refrigerant Gas Management Plan which includes policies and procedures for (i) overall resource efficiency strategy for refrigerant gas usage and leakage reduction, (ii) regulatory compliance (e.g. Montreal protocol and phase out of HCFCs), (iii) assessment of refrigerants to avoid high GWP refrigerants, (iv) refrigerant inventory and tracking incl.	Resource Efficiency and Refrigerant Gas Management Plan Disclosure and list of refrigerants	31 October 2023

	usage, storage, and disposal, (v) OHS risks mitigation measures.		
9.	PS4: Traffic Management Plan Ensure drivers of its transport contractors will undergo defensive driver training and will ensure that a road safety plan is implemented, including vehicle maintenance and inspection program.	Drivers training Plan	31 December 2023
10.	PS 4: Security Personnel Assess risks posed by the proposed security arrangements and develop and implement a Security Management Plan (SMP). The SMP will include a training module for company's management and security personnel and be aligned with PS 4	Security Management Plan Security Training Plan	31 December 2023
11.	Gender Conduct gender assessment and develop Gender Action Plan to meet at least one 2x challenge criteria for entrepreneurship, leadership, employment or consumption.	Gender Action Plan (incl. targets, indicators, measures)	31 October 2023