ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE SIERRA LEONE RICE SPECIAL AGRO-PROCESSING ZONE (SAPZ) PROJECT – PORT LOKO

The Ministry of Agriculture & Food Security

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Abbreviations

Abbreviation	Full Term
AfDB	African Development Bank
ATC	Agricultural Transformation Centre
AC	Aggregation Centre
COD	Chemical Oxygen Demand
DHS	Demographic and Health Survey
EIA	Environmental Impact Assessment
EC	Electrical Conductivity
EPA	Environment Protection Agency
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESHS	Environmental, Social, Health, and Safety
GBV	Gender-Based Violence
GRM	Grievance Redress Mechanism
ISFM	Integrated Soil Fertility Management
IVS	Inland Valley Swamp
LAeq	Equivalent Continuous Sound Level
MAFS	Ministry of Agriculture and Food Security
MSC	Mechanization Service Centre
N	Nitrogen
NGO	Non-Governmental Organization
NPAA	National Protected Area Authority
OD	Open Defecation
P	Phosphorus
PIU	Project Implementation Unit
PMP	Pest/Vector Management Plan
SAPZ	Special Agro-Processing Zone
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment
SEZ	Special Economic Zone
SLERAZ	Sierra Leone Rice Agro-Processing Zone Project
SOM	Soil Organic Matter
SPSS	Statistical Package for the Social Sciences
TDS	Total Dissolved Solids
WMP	Waste Management Plan
WHO	World Health Organization

EXECUTIVE SUMMARY

This Environmental and Social Impact Assessment (ESIA) report has been prepared for the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project, as a 75 million USD strategic initiative aimed at transforming the rice value chain in Sierra Leone. The SAPZ Project, led by the Ministry of Agriculture and Food Security (MAFS) with support from the African Development Bank (AfDB), is designed to enhance rice production, processing, and commercialization through the development of integrated clusters supported by rural infrastructure and services. This intervention will be implemented in the Districts of Kambia and Port Loko in Sierra Leone's North Western Province. This ESIA covers the interventions in Port Loko District and the overall objective is to identify, assess, and propose measures to avoid, minimize, mitigate, and manage the potential environmental, social, health, and safety impacts associated with the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project, in line with the African Development Bank's 2023 Integrated Safeguards System (ISS) and the Sierra Leone applicable laws.

The goal of the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project is to contribute to inclusive and sustainable agro-industrial development in Sierra Leone. The overarching goal targets the reduction of rice imports, the creation of employment opportunities, and the alleviation of poverty, particularly among smallholder farmers, women, and youth. The project is designed to achieve food self-sufficiency through a private-sector-led, government-enabled modernization of Sierra Leone's rice value chain.

Specific Objectives

The project aims to achieve the following specific objectives:

- **Strengthen agricultural productivity and production systems** by introducing climate-smart rice varieties, promoting mechanization, and enhancing irrigation infrastructure.
- **Develop modern rice processing infrastructure** to produce high-quality, import-grade milled rice.
- **Facilitate market access and commercialization** for rice farmers and agribusinesses through aggregation, branding, and marketing initiatives.
- **Promote private sector investments** in agro-processing and related infrastructure through the development of Agro-Industrial Hubs (AIHs) and Agricultural Transformation Centres (ATCs).
- **Enhance resilience to climate change** and promote environmentally sustainable agricultural practices.
- **Empower women and youth** by improving their participation and leadership across the rice value chain.

ES1 PROJECT COMPONENTS AND MAIN ACTIVITIES

The proposed project comprises key components including the construction of Agricultural Transformation Centres (ATCs) and Aggregation Centres (ACs), rehabilitation and spot improvement of farm tracks, land development and preparation, and the provision of mechanization and irrigation support to smallholder farmers. The initiative also promotes the use of certified climate-resilient seed varieties and supports value addition through agro-industrial processing hubs.

Component 1: Enhancement of Agricultural Productivity and Production Systems

This component focuses on improving the competitiveness and profitability of rice farming in Sierra Leone by enhancing field-level productivity, post-harvest management, and the quality of milled rice.

Main Activities:

- Promotion of High-Yielding Varieties:
  - Introduction of climate-resilient rice varieties tolerant to salinity and floods, suitable for mangrove, Boli[1], and inland valley ecosystems.
  - Collaboration with AfricaRice/TAAT Rice Compact and SLARi for seed development and certification.
- Strengthening Seed Systems:
  - Support for the production of early-generation seeds (breeder and foundation seeds).
  - Facilitation of private sector involvement in certified seed multiplication and distribution.
- Provision of Agricultural Inputs:
  - Support for farmers in acquiring certified seeds, customized fertilizer blends, and other inputs.
  - Establishment of linkages with fertilizer companies for timely input supply.
- Mechanization and Land Development:
  - Promotion of land preparation, planting, and harvesting mechanization services.
  - Partnership with private sector service providers for machinery services.
- Irrigation Development:
  - Construction and rehabilitation of irrigation schemes to support year-round production.
  - Introduction of innovative water management technologies.
- Training and Capacity Building:
  - Training of farmers, aggregators, and millers on good agricultural practices (GAP), harvesting techniques, and post-harvest management.
  - Promotion of improved storage, drying, and threshing technologies to reduce losses.
- Support for Modern Processing Facilities:
  - Provision of support to acquire modern rice processing machinery (e.g., mills, cleaners, graders, packaging equipment).

Component 2: Development of the Agro-Industrial Hub and Agricultural Transformation Centres

This component aims to establish the enabling physical and institutional infrastructure to support large-scale agro-processing and market development.

Main Activities:

- Agro-Industrial Hub (AIH) Development:
  - Construction of essential infrastructure, including access, internal roads, water supply systems, waste management systems, energy supply (grid extension and solar energy options), and ICT connectivity.

[1] Seasonal swamp land - boli being a Temne word for those lands that are flooded in the rainy season and dry and hard in the dry season

    - Construction of office buildings, training centres, laboratories for quality certification, and administrative facilities.
    - Parcelling and servicing of plots for private sector agro-processing investors.
- Agricultural Transformation Centres (ATCs) and Aggregation Centres (ACs):
    - Establishment of ATCs at strategic locations (e.g., Mambolo, Kychum, Kathoma) to facilitate farmer aggregation, input distribution, and primary handling of produce.
    - Development of ACs to support aggregation, storage, cleaning, and transportation logistics.
- Transport Infrastructure:
    - Rehabilitation and spot improvements of farm tracks to connect production clusters to ATCs and the AIH.
    - Development of water transportation facilities in riverine areas.
- Zone Management and Private Sector Engagement:
    - Adoption of Special Economic Zone[2] (SEZ) compliant policies for management and operation of AIH and ATCs.
    - Recruitment of facility managers through competitive processes.
    - Design of attractive incentives and financing mechanisms to attract private investors.

Component 3: Market Development and Capacity Building

This component aims to link production to markets through strategic interventions that build capacity, improve competitiveness, and promote market-oriented rice value chain development.

Main Activities:

- Market Linkages:
    - Facilitation of partnerships between farmer organizations, aggregators, processors, and off-takers.
    - Development and dissemination of market information systems.
- Branding and Consumer Awareness:
    - Support for the packaging, branding, and marketing of locally milled rice.
    - Consumer advocacy campaigns to promote local rice as a substitute for imports.
- Quality Standards and Certification:
    - Development of national standards for milled rice quality.
    - Training farmers, processors, and millers on food safety and quality assurance practices.
- Capacity Building for Farmers and SMEs:
    - Skills development programs focused on production, post-harvest handling, processing, and entrepreneurship.
    - Tailored support programs for women and youth entrepreneurs.
- Institutional Strengthening:
    - Strengthening of the Ministry of Agriculture's extension services and engineering units.
    - Capacity building for policy makers and regulatory agencies to support SAPZ development.

[2] Special Economic Zone (SEZ) policies are designed to stimulate economic activity in designated areas by providing incentives and streamlined regulations to attract both domestic and foreign investment. These policies typically involve tax breaks, duty-free import of goods, streamlined customs procedures, and infrastructure support, all aimed at boosting exports and overall economic growth

- **Component 4:** Project Management and Monitoring and Evaluation

This component ensures that the project is implemented effectively, efficiently, and with strong accountability.

ES2 Project Alternatives

Three options were considered. First, implementing the project in another district was rejected due to Port Loko's existing rice farming activity and its proximity to Kambia District, where the Agro-Industrial Hub will be built. Together, the two districts offer 136,000 hectares of arable land, making them ideal for integrated agro-industrial development. The proximity of these locations to the hub reduces transportation distances and the inherent risk of vehicle accidents. Furthermore, Port Loko's existing rice farming industry will result in less pressure on green field areas as current farms are available for inclusion in the project compared to other districts where green field areas would have to be converted to rice production. The project will support famers to cultivate rice on their own lands to increase yield thus avioiding economic displacement. Furthermore, there are existing government facilities in Port Loko District that will be used to house the ATC avoiding the need to take communities land for the construction of the ATC.

Second, the "no project" scenario would result in continued low yields, poor farming practices, and no reduction in rice imports, failing to improve food security or rural livelihoods.

The third and preferred option i.e. the proposed SAPZ Project supports climate-resilient rice production, strengthens market linkages, promotes private-sector investment, and delivers substantial social, environmental, and economic benefits in alignment with national and AfDB strategies.

ES3 Project Location and Key Environmental and Social Context

The project covers Port Loko and Kambia Districts, targeting approximately 100,000 hectares of arable land. This ESIA focuses on activities in Port Loko District, including rice production support to 40,000 hectares and establishment of an ATC.

Key Valued Environmental and Social Components (VECs):

Valued Environmental Components

- Inland Valley Swamps (IVS) – sensitive to agrochemical runoff.
- Water resources - sensitive to agrochemical runoff; overextraction, pollution from processing waste
- Soil fertility – moderately acidic hydromorphic soils with low nitrogen and potassium levels.
- Biodiversity – includes local bird and mammal species; no protected species or habitats identified on site.
- Boli ecosystems – soil erosion, mechanization, and invasive species

Valued Social Components

- Human Environment – population of 615,376, with 70% engaged in agriculture; low literacy, poor sanitation, and high vulnerability among women, youth, and the elderly.
- Community health and safety – low levels of formal employment can provide the environment for increase risk taking by locals to seek and maintain employment
- Traditional Agricultural Practises – Agricultureal practices in the target district are largely manual labour intensive with little to no mechanisation or access to imputs such as fertilizer

in the absence of government donor funded projects leading to low yields typically less than 2 tons/ hectare compared with industry standards ranging from 3-6 tons / hectare (MAFS).

ES4 Legal and Institutional Framework

The SAPZ Project operates within a well-defined legal and institutional framework that integrates national legislation, regional commitments, and international best practices. The Environmental and Social Impact Assessment (ESIA) complies with both the regulatory requirements of the Government of Sierra Leone and the African Development Bank's 2023 Integrated Safeguards System (ISS).

Key national legislation and policies governing the environmental and social dimensions of the SAPZ Project include:

- **Feed Feed Salone Strategy (2023–2030:**The *Feed Salone* strategy is the Government of Sierra Leone's flagship initiative aimed at transforming the agriculture sector for food self-sufficiency, nutrition security, economic empowerment, and climate resilience. It prioritizes rice self-sufficiency, private sector investment, youth and women's empowerment, and value addition across staple food chains. The SAPZ Project directly aligns with Feed Salone by promoting integrated agro-industrial development in rice, improving productivity, and strengthening rural infrastructure
- **National Land Policy (2015):**The National Land Policy provides a framework for equitable and transparent land governance in Sierra Leone. It emphasizes the protection of customary land rights, promotes inclusive access, especially for women and youth. It seeks to prevent land-related conflict. For the SAPZ Project, the policy underlines the importance of community consultations, free, prior, and informed consent (FPIC), and the establishment of grievance redress mechanisms.
- **National Agricultural Transformation and Investment Plan (NATIP) / Strategic Agricultural Development Plan:** This strategic plan outlines Sierra Leone's agricultural priorities and investment needs, focusing on improving productivity, resilience, and commercialization of the sector. It supports value chain development, mechanization, and climate-smart practices. The SAPZ Project supports NATIP objectives through the development of agro-industrial hubs, strengthening of farmer cooperatives, and improved access to markets and technology.
- **The Environment Protection Agency Act, 2022**: The primary legal instrument mandating Environmental Impact Assessments for large-scale agricultural and industrial projects. The Act provides for licensing, monitoring, and enforcement mechanisms and mandates public disclosure and stakeholder participation.
- **Environment Protection (Agricultural Activities) Regulations, 2023**: Specifically applicable to agro-industrial projects, these regulations detail procedural requirements for agricultural EIA licensing, agrochemical use, and pollution control.
- **Customary Land Rights Act, 2022**: Ensures Free, Prior, and Informed Consent (FPIC) in community land transactions, prohibits discrimination in land access, and recognizes the rights of women and youth.

- National Environmental Policy (1994), National Biodiversity Strategy and Action Plan (2017), and Forestry and Wildlife Policies guide the project's environmental sustainability, biodiversity conservation, and natural resource use.
- Other relevant laws include the **Factories Act (1974)** on worker safety, the **Employment Act (2023)** on labour standards, and the **Gender Empowerment Act (2022)**, which enforces gender equity in employment and leadership roles.

The African Development Bank's **2023 Integrated Safeguards System (ISS)** applies to the SAPZ Project. The following Operational Safeguards (OSs) are applicable:

- **OS1**: Environmental and Social Assessment—governs the preparation of the ESIA and ESMP.
- **OS2**: Labor and Working Conditions—ensures non-discriminatory employment, occupational health and safety, and prohibition of child/forced labour.
- **OS3**: Resource Efficiency and Pollution Prevention—promotes waste minimization and sound agrochemical management.
- **OS4**: Community Health and Safety—manages traffic risks, communicable diseases, and infrastructure-related hazards.
- **OS6**: Biodiversity and Ecosystem Services—ensures avoidance and minimization of impacts on sensitive habitats such as inland valley swamps and mangroves.
- **OS10**: Stakeholder Engagement and Information Disclosure—governs consultation processes and grievance mechanisms.

The roles and responsibilities of implementing stakeholders—including MAFS, the Project Implementation Unit (PIU), EPA, NPAA, and local authorities—are clearly defined to ensure coordinated project delivery and safeguards compliance.

- **Ministry of Agriculture and Food Security (MAFS)**: Lead executing agency responsible for overall project coordination, safeguards compliance, and implementation of the ESMP via the PIU.
- **Environment Protection Agency – Sierra Leone (EPA-SL)**: Reviews, approves, and monitors ESIA implementation. It also issues the Environmental License.
- **Ministry of Lands, Housing and Country Planning (MLHCP)**: Supports land documentation and ensures compliance with land tenure laws.
- **Ministry of Environment and Climate Change**: Oversees national environmental policy coherence and climate resilience alignment.
- **Ministry of Planning and Economic Development (MoPED)**: Provides oversight for resettlement activities and national development alignment.
- **National Protected Area Authority (NPAA)**: Engaged where project activities may affect biodiversity corridors or mangrove ecosystems.

- **Sierra Leone Meteorological Agency (SLMet)**: Provides agro-climatic data for climate-resilient project design and monitoring.
- **District Councils and Local Authorities**: Facilitate community engagement, conflict resolution, and ensure local alignment with project implementation.

This robust institutional framework ensures that the SAPZ Project is governed by a strong system of environmental regulation, social protection, and coordinated stakeholder oversight.

ES4 Environmental & Social Baseline

In compliance with the AfDB Integrated Safeguards System (ISS 2023) and Sierra Leone's national environmental legislation, this ESIA identifies and assesses potential environmental and social risks and proposes corresponding mitigation measures. The ESIA integrates extensive baseline data collected through stakeholder consultations, environmental monitoring, and household surveys across four key communities in Port Loko District: Kathoma, Mankara, Mange, and Rothum.

Key findings of the socio-economic baseline reveal a largely agrarian economy with farming, charcoal processing, petty trading, and domestic roles dominating the occupational landscape. The district has the highest number of [3]Agriculture Households at 74% (Statistics SL 2015 Census) with 41% of the survey population listing agriculture as their primary occupation. Majority of the population depends on agriculture as the primary livelihood, with limited diversification into formal employment sectors. The project has strong community support, with over 70% of respondents expressing optimism about improved economic opportunities.

From an environmental standpoint, soil and water analyses conducted in the project sites indicate generally favourable conditions for rice cultivation. However, attention is required to address nutrient deficiencies and water quality concerns. A noise baseline was also established, and the project is expected to operate within permissible thresholds when mitigation measures are applied.

The SAPZ project area in Port Loko District hosts a mix of farm bush, secondary forest, and wetland vegetation, with two vulnerable plant species (IUCN Red List) identified (*Brachystegia leonensis* and *Terminalia ivorensis)*. Ecological surveys recorded 70 bird species, including the vulnerable Rufous Fishing Owl, and 16 aquatic species, all of Least Concern. Fauna studies identified no species of conservation note, though the community indicated historical knowledge of the western chimpanzee and leopard which are no longer present in their locality.

ES5 Stakeholder Consultations

Stakeholder engagement has been central to the ESIA process. Community consultations were conducted in five locations within the project area, with a total of 400 respondents participating in socio-economic surveys. These engagements provided a platform for capturing local perspectives, assessing potential project risks, and ensuring alignment with community expectations. The process emphasized inclusivity, capturing the views of women, youth, elders, and persons with disabilities.

A summary of community-level consultation meetings is presented below:

[3] Agricultural household is defined as one in which at least one family member is involved in crop farming, livestock production or fishery activity

Community	Date of Meeting	Comments / Issues Raised	Project Responses / Commitments
Kathoma	12/02/2025	• Lack of drying floors and waiting sheds • Poor land development from previous projects • Request for transparent grievance process • Need for continuous engagement • Water quality concerns • Lack of irrigation equipment	• Project will construct appropriate facilities • Improved sustainable land planning, strong M&E • Robust GRM to ensure accessible resolution • Communication structures as per SEP • Environmental management plan for pesticide/salinity concerns • Provision of irrigation where appropriate
Mankara	13/02/2025		
Mange	14/02/2025		
Rothum	16/02/2025		
Attendance	Local leaders (cultural, woment, youth, farmer organisations, religious) and the general population of the communities inclusive of women, men, youths and the elderly.		

Community Expectations

Stakeholders across the SAPZ project communities expressed clear and forward-looking expectations during consultations. These include:

- Occupational safety: Provision of Personal Protective Equipment (PPE) for farmers, machine operators, and agrochemical handlers.
- Local expertise integration: Engagement of local technical knowledge in the design and implementation of irrigation and related infrastructure.
- Sustainability and innovation: Interest in environmentally sustainable practices and the adoption of modern technologies.
- Agricultural support: Assistance in accessing improved seed varieties, mechanization services, and technical advice for better farming practices.
- Market development: Anticipation of improved market access, including diversified domestic and external market linkages.
- Stable buyer networks: Establishment of reliable off-take markets for locally produced rice.
- Community enterprise growth: Expectations that the project will catalyse local business opportunities and entrepreneurship.
- Food security: Enhanced local rice availability and improved nutritional outcomes.
- Gender equity: Improved access to productive land and agricultural inputs for women.

ES6 Grievance Redress Mechanism

A robust, inclusive, and transparent Grievance Redress Mechanism (GRM) has been developed to address concerns and complaints arising from the implementation of the project. The GRM operates through a four-tier system (community, chiefdom, district, and project/national level) and ensures timely and culturally appropriate resolution of issues related to land acquisition, environmental and social impacts, and vulnerable group inclusion.

Key features include:

- Community-level grievance committees with representation from traditional authorities, women, youth, and farmer-based organisations.
- Clear procedures for complaint intake, categorisation, investigation, resolution, referral, and feedback.
- Integration of a dedicated GBV referral pathway, aligned with national protocols in Kambia and Port Loko districts.
- Regular monitoring and reporting to inform adaptive management and improve project implementation.
- No-cost access to the mechanism for all stakeholders, including marginalized groups, with support for illiterate or vulnerable complainants.

This GRM aligns with AfDB's Integrated Safeguards System (ISS), Sierra Leonean legislation, and international best practices, contributing to project accountability, community trust, and social cohesion.

ES7 Impacts and Mitigation Methods

The ESIA outlines the anticipated impacts across four phases—preconstruction, construction, operation and maintenance, and decommissioning. Key environmental impacts include vegetation loss, soil erosion, agrochemical runoff, and waste generation, while social risks include potential land disputes, labour influx, and gender-based violence (GBV). The assessment also considers cumulative and indirect impacts such as increased traffic, changing land use, and in-migration.

To address these risks, a comprehensive cost-effective Environmental and Social Management Plan (ESMP) has been developed, detailing mitigation measures, implementation responsibilities, and monitoring indicators. A Grievance Redress Mechanism (GRM) has also been established, ensuring that community concerns are addressed transparently and effectively at community, district, and national levels

Project Phases and Key Activities

- Preconstruction
    - Identifying appropriate farmland and landowners
    - Identifying location for ATC & AC
    - Design of ATC & AC
- Construction
    - ATC & AC Construction
    - Land Development and Preparation

    - Maintenance / Rehabilitation of farm tracks
- Operations and Maintenance
    - Farming operations i.e. planting, harvesting, etc
    - Use of agrochemical i.e. pesticides, herbicides, fertilizers
    - Transportation
- Demolition & Restoration
    - Demolition of ATC and restoration of natural environment

ES7.1 Key Environmental & Social Impacts

Pre-Construction

- Disputes / grievainces arising from inadequate stakeholder engagement to secure the buy-in of approximately 2,000 farmers the project intends to support
- Disputes related to the selection process of approximately 2,000 targeted farmers
- Exclusion of vulnerable groups from project benefits and decision-making processes

Construction

- Air pollution, noise, and vibration generated by the operation of farm tractors, light machinery, vehicles, and equipment (tractors, generators, trucks) during land preparation and farm track spot improvements in excess of WHO standards (Air and noise quality) and current baseline (air quality)
- Increased community exposure to physical hazards associated with project site activities such as land preparation, rehabilitation of ATC and farm track spot improvements
- Discrimination in employment practices, particularly against women and persons with disabilities during employment of workers (estimated at 100 persons).
- Labour rights violations, including child and forced labour, delayed or partial payment of wages within project-related activities may lead to worker grievances and workplace conflict
- Increased incidence of gender-based violence (GBV), sexual exploitation and abuse (SEA), and sexual harassment (SH) linked to construction-related activities and labour influx
- Transmission of communicable diseases (e.g., STIs, HIV/AIDS, MPOX) between project workers and surrounding communities
- Contamination of soil, surface water, and groundwater resulting from improper handling, storage, transportation, and disposal of waste lubricants, fuels, black and greywater, and accidental chemical or oil spills
- Localized erosion and habitat disturbance resulting from wharf rehabilitation or construction

Operations & Maintenance

- Degradation of soil fertility caused by the overuse or improper application of fertilizers
- Pollution of water bodies from fertilizer and pesticide runoff, leading to eutrophication, death of aquatic organisms, and overall degradation of water quality
- Discrimination in employment practices, particularly against women and persons with disabilities
- Labour rights violations, including child and forced labour, within project-related activities
- Delayed or partial payment of wages may lead to worker grievances and workplace conflict
- Increase in boat related accidents due to unsafe riverine transport practices

ES7.2 ESMP

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Preconstruction Phase							
Farm identification and stakeholder engagement	Disputes / grievances arising from inadequate stakeholder engagement to secure the buy-in of approximately 2,000 farmers the project intends to support Disputes related to the selection process of approximately 2,000 targeted farmers Exclusion of vulnerable groups from project benefits and decision-making processes	• Conduct transparent stakeholder consultations; • Prioritise inclusion of women, youth, and vulnerable groups; • Apply grievance redress mechanisms • Implement stakeholder engagement plan • Focus on existing farms for inclusion into project	• Records of stakeholder consultation • Number of vulnerable groups / persons engaged • Grievance logs: number of grievances received vs resolved	Monthly E&S reports submitted to AfDB Environmental and Social Performance Audits AfDB Implementation Support Missions	Implementation completed prior to any construction and land preparation activities	PIU, Ministry of Agriculture, Ministry of Lands, Housing and Country Planning	$20,000 NLe460,000
	Encroachment on or destruction of sensitive ecosystems caused by construction of project infrastructure or	• Conduct environmental screening for all site options. • Avoid critical / pristine habitats such as green field IVS	• Site screening records	Monthly E&S reports submitted to AfDB	Site screening completed prior to inclusion of farms in SAPZ interventions	PIU, NPAA	$15,000 NLe345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	expansion of farming activities	• Avoid siting infrastructure in areas with intact riparian or swamp forests • Do not convert intact riparian or swamp forests to agricultural land • Incorporate agroforestry or buffer reforestation components to enhance ecological resilience. • Promote community-led forest management, particularly in areas of secondary regrowth. • Establish nursery programs for replanting vulnerable species and restoring degraded habitats.		Environmental and Social Performance Audits AfDB Supervision Missions			
	Exclusion of vulnerable groups from project benefits and decision-making processes	• Implement SEP and have functional GRM • Prioritise inclusion of vulnerable groups during stakeholder engagement • Organise focus groups or additional meetings focusing on vulnerable groups	• Records of meeting with vulnerable groups • Grievance logs: number of grievances received vs resolved	Monthly reports to AfDB AfDB Supervision missions Environmental and Social Performance Audits	Vulnerable groups engaged prior to completion of land identification exercises	PIU	$5,000 NLe115,000
	Strengthened community engagement leading to improved participation, trust, and ownership of project activities (positive)	• Implement SEP • Sincere engagement with host communities • Keep communities engaged and informed	• Grievance logs: number of grievances received vs resolved	AfDB Supervision missions Environmental and Social	N/A	PIU	Costs incorporated from the other stakeholder consultation exercises during

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Transparent process for the selection of sites. • Respect local customs and leadership • Ensure communities understand their rights	• Records of stakeholder engagement.	Performance Audits			this project phase.
Construction Phase		•					
Land development and preparation; Construction of ATC/AC; Farm track spot improvement; Wharf construction and rehabilitation	Air pollution, noise, and vibration generated by the operation of farm tractors, light machinery, vehicles, and equipment (tractors, generators, trucks) during land preparation and farm track spot improvements in excess of WHO standards (Air and noise quality) and current baseline (air quality)	• Ensure strict enforcement of on-site and off-site speed limit regulations. • Provide the workforce with minimum Personal Protective Equipment (PPE) as required. • Conduct periodic monitoring or when complaints arise. • Ensure vehicle idling time shall be minimised. • Sensitise drivers to avoid unnecessary revving of vehicle (heavy and light) engines at loading/offloading points and parking areas and to switch off or keep vehicle engines at these points. • Undertake activities that may be regarded as noisy during normal working hours. • High-level equipment and machinery maintenance to reduce noise, vibration, and emission.	• Air Quality: PM2.5 & PM10 levels , SO2, NO2, VOCs • Noise Levels: dB • PPE Checklist • Daily toolbox talk • Inpection reports for equipment and machinery maintenance	Air quality and noise level reports incorporated into monthly reporting to AfDB	Quarterly air quality surveys during construction, land preparation and feeder road rehabilitation	PIU and contractor	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Fit machinery and motorised equipment with exhaust mufflers/silencers to minimise noise generation. • Sensitise construction drivers to avoid gunning of vehicle engines or hooting, especially when passing through sensitive areas such as schools and hospitals. • Speed Limit enforced to minimise dust generation on and off-site. • Avoid excavation works in extremely dry and windy weather • Investigation of the complaints or significant changes in air quality to establish the root cause.					
	Vegetation clearance and resulting soil erosion due to land preparation	• Limit land clearance to essential areas; apply erosion control measures (e.g., silt fences, terracing) • The Contractor will draw up a plan for approval by the PIU setting out what tress will need to be removed. This plan must be justified based on the footprint for construction and related concerns. • The contractor should take precautions to avoid cutting/damage to trees and vegetation outside the designs	• Prescence of cleared land that is not utilised	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	Clearance plan to be approved by PIU prior to commencement vegetation clearance Throughout vegetations clearance	PIU, Contractor	$8,000 NLe184,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	Sedimentation of watercourses resulting from soil erosion and runoff during land clearing and construction activities	• Limit land clearance to essential areas only • Apply erosion control measures as appropriate e.g. silt fences, terracing, silt traps etc to reduce risk of turbid water reporting directly to river courses • Maintain vegetated buffer areas between excavated / tilled areas and rivers	• Prescence of cleared and unutilised land • Prescence of erosion control measures where necessary • Vegetation buffer maintained between project areas and rivers . Note: *On preexisting community farms this buffer may no longer exist*	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	Clearance plan to be approved by PIU prior to commencement vegetation clearance Throughout vegetations clearance Replanting efforts if any to be done within 6 months of economic tree removal	PIU, Contractor Implementation construction and land clearance	No additional cost
	Occupational health and safety impacts associated with exposure to dust, noise, vibration, hot work, site traffic, poor ergonomics, extreme temperatures, hazardous materials, and inadequate working conditions	• The Contractor should recruit an occupational safety, health and environment officer to manage, document and report all health, safety, and environment protection issues (incidents and accidents) on site. • The requirement to adhere to OHS mitigation and this ESMP in general should be embedded in the relevant contract with the	• Occupational Safety, Health and Environment E&S Officer employed by the contractor • Approved CESMP	Contractor reports to the PIU Monthly PIU reporting to AfDB AfDB supervision meetings	CESMP drafted and approved prior to start of construction activities	Contractor Throughout all construction work	$10,000 NLe 230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		contractor and include financial penalties. • Contractor to develop a CESMP in compliance with this ESMP with a TOR including but not limited to the points in Annex 2: Contractors CESMP – Required Content • Incorporate OHS in C-ESMP to be approved by the PCU • The contractor's OHS officer shall conduct weekly toolbox talks for workers on the health and safety requirements of the different tasks included in the assignment and sensitize workers on the spread of infectious diseases. • Prepare and install warning and safety signs in work zones. • Provide hearing protection where necessary (when sound level over 8 hours reaches 85 dB(A)). • To reduce the risk of vibration-related injuries, choose the appropriate equipment and use vibration-dampening pads or devices. • Monitor weather forecasts for outdoor work and adjust work and rest periods to ensure employees are safe and comfortable.	• Incident and accident statistics • HSE Training records (inductions, tool box talks) • Gender segregated toilet facilities provided for staff	Environmental and Social Performance Audits			

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Provide temporary shelters or rest areas for the workforce. • Ensure that construction workers have an adequate drinking water supply. • Provide training and licencing for industrial vehicle operators to ensure safe vehicle operation and establish clear rules and procedures for vehicle use. • Use mechanical assists to reduce the physical demands of lifting and holding materials and tools. • Implement quality control and maintenance programs to ensure equipment is in good working order and reduce the risk of accidents due to equipment failure. • Ensure that provisions for reporting incidents, accidents, and dangerous occurrences during construction using prescribed forms are in place. • Ensure that workers undergo safety inductions. • Provide appropriate signage at the site and ensure all workers undergo training on the meaning and importance of each signage.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Adequate and proper fencing of the worksite and controlled access to only authorized personnel. • Provision of adequate and appropriate personal protective equipment (PPEs) to all workers and official site visitors. • A well-stocked first aid box, which is readily available and accessible, should be provided on the site premises. • Contractor to sign contract with nearby hospital / clinic etc to provide medical referral services for staff if required • Emergency telephone numbers, such as those for the ambulance and fire department, should be adequately and prominently displayed. • Firefighting equipment such as fire extinguishers be provided at strategic locations such as stores and hot work areas. • Signs such as "NO SMOKING" must be prominently displayed within the sites, especially in parts where flammable materials are stored.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Enforce the strict adherence to standard operating procedure for all work • The Contractor shall hire fit and healthy workers, ensure their safety and health, and confirm no harm caused at the end of the project. • Guard machines and equipment to protect workers from injury. • Provide ear protection such as earmuffs for workers in noisy and vibrating areas. • Provide workers with awareness training on preventing infection from diseases such as influenza, typhoid, and sexually transmitted diseases. • Ensure well maintained and clean gender segregated sanitation facilities, including handwashing stations, are available on site. Facilities to include constant running water. • Conduct awareness programs to educate the workforce on their rights, available support services, and reporting mechanisms.					
	Increased community exposure to physical hazards associated with	• Undertake safety precautions to address safety hazards for nearby community members	• Incident / accident statistics	Community interviews / engagements	Throughout construction activities	Contractor	$5,000 NLe115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	project site activities such as land preparation, rehabilitation of ATC and farm track spot improvements	• The sites shall remain fenced at all times. • Restrict access to work sites • Place flagmen to direct light, heavy vehicles, and machinery entry to the site to protect community members using roads near the construction site. • Coordinate with the relevant authority for potential traffic issues. • Schedule noisy activities during acceptable hours and inform nearby community members. • Provide clear communication to the nearby communities about construction activities, potential risks, and safety precautions.	• Grievance logs	during AfDB supervision missions Environmental and Social Performance Audits Monthly reports to AfDB		Implementation throughout construction and land preparation processes	
	Increased local employment opportunities resulting from project activities (positive)	• The Contractor prioritise hiring unskilled/semi-skilled labour from the surrounding area where possible to give the maximum benefit to the local community.	• Number of contractor staff from surrounding area	Contractor employment records Monthly report to AfDB	Throughout construction process	PIU, Contractor	No additional costs
Civil works	Discrimination in employment practices, particularly against women and persons with disabilities during	The SAPZ Project will implement a Labor Management Plan (see Annex 4: Labour Management Plan (LMP) for the SAPZ Project) to include the following measures:	• GRM Logs • Approved CESMP	Visual inspections of signed CoC and employment contracts	Throughout construction	PIU Ministry of labour	No additional cost

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	employment of workers (estimated at 100 persons). Labour rights violations, including child and forced labour, delayed or partial payment of wages within project-related activities may lead to worker grievances and workplace conflict	• Contractor to develop CESMP for approval by the PIU • Contractor to ensure workers' contracts stipulate the expected remunerations, duration, period, and working conditions. Contractor to ensure that workers are aware of the details of their contracts. • All contracts and salaries to meeting legal requirements for salary, hours of work, status, etc • Ensure the workers' payment rates meet the national standards for each job category/type. • Ensure Provision of timely payment. • Ensure Provision of Workers' Grievance Redress Mechanism (GRM). • The Contractor should develop and implement clear equal employment opportunity conditions that explicitly prohibit discrimination based on gender or disability. • Contractor to meet minimum 30% requirement of female employment as stipulated by national legislation	• Number of signed CoC • Number of signed contracts	Engagements with contractor's staff Monthly labour report submitted to the PIU by the contractor			

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• The Contractor will conduct regular training sessions on diversity, inclusion, and preventing discrimination for all employees, supervisors, and managers. • Incorporate universal design principles in construction to ensure accessibility for persons with disabilities. • All Contractor workers are to sign CoCs prior to starting work. Stipulations of CoC to be explained to workers especially illiterate workers. . • Develop and enforce a code of conduct prohibiting child and forced labour.as part of CESMP • Implement controls throughout construction work to ensure that child and forced labour are not being used. • Report and remediate any violations of their code of conduct. • Provide education and awareness training to all employees, suppliers, and sub-contractors.					
Farm track spot improvements	Disruption of local traffic patterns and increased incidences of road	• Traffic management measures to be integrated into C-ESMP	• Number of traffic incidents	Reports from or via engagement with local unit	Traffic management measures to be	Contractor & PIU	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	accidents due rehabilitation of feeder roads	• Undertake safety precautions to address safety hazards for the nearby residents, including safety/warning signage, safety barriers around the construction site, and safe driving practices. • Informing the public about construction risks. • Minimise vehicle movements. • Discourage overloading. • Ensure compliance with all driving safety regulations and penalise drivers working for the project who do not follow them. • Conduct driving safety awareness campaigns. • Do not tolerate dangerous driving or even minor traffic infringement. • Enforce strict adherence to the speed limit for all construction vehicles (light and heavy) on and off-site. • Undertake community safety awareness campaigns and encourage community members to report drivers not observing traffic rules. • Coordinate with the Sierra Leone Police and Road Safety Corps as and when necessary	attributed to Project • Number of grievances related to rehabilitation works	command (Sierra Leone Police) Grievance logs	included in the C-ESMP and must be approved before start of road rehabilitation Mitigation methods to be implemented throughout road rehabilitation		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	Increased risk of gender-based violence (GBV), sexual exploitation and abuse (SEA), and sexual harassment (SH) linked to construction-related activities and labour influx	• Conduct awareness programs to educate the workforce on their rights, available support services, and reporting mechanisms. • Provide education and awareness training to workers to prevent GBV/SEA/SH incidents. • Workers to sign the Code of Conduct. • Implement and enforce strict codes of conduct for the workforce, emphasizing zero tolerance for sexual harassment and abuse. • Provide GBV awareness sessions for the community. • Conduct community awareness programs to educate the project community on their rights, available support services, and reporting mechanisms.	• Number of workers trained on GBV/SH/SEA • Number of complaints related to GBV/SH/SEA and status of resolution • Number of signed CoC • Number of periodic sensitization and reports on GBV/SEA/SH	Grievance logs Monthly reports to AfDB AfDB Supervision missions	Implementation to start with signing of CoC by all contractor staff on signing of employment contracts. Implementation throughout construction phase.	Contractor & PIU	$5,000 NLe 115,000
	Transmission of communicable diseases (e.g., STIs, HIV/AIDS, MPOX) between project workers and surrounding communities	• Contractor to develop training plan to generate community awareness on the spread of communicable diseases • Community awareness sessions on infectious diseases. • Provide awareness training to the community on preventing infection from common and	• Number of community members trained on communicable diseases	Monthly reports to AfDB	Implementation to start when contractor introduced to the community i.e. awareness raising on communicable diseases and	PIU, Contractor	$2,000 NLE46,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		emerging communicable diseases. • Provide adequate WASH facilities for site staff			risks associated with influx of workers.		
	Contamination of soil, surface water, and groundwater resulting from improper handling, storage, transportation, and disposal of waste, lubricants, fuels, black and greywater, and accidental chemical or oil spills .	• Implement waste segregation to prevent mixing hazardous and non-hazardous wastes by placing small and medium-sized bins at selected points for immediate temporary storage of collected wastes. • Specific areas on site shall be designated for temporarily managing the general domestic and construction d waste. • Substitute raw materials or inputs with less hazardous or toxic materials. • Institute good housekeeping and operating practices, including inventory control, to reduce the amount of waste that may prevent contaminated soil and waste from eroding into receiving waters. • Use building materials with minimal or no packaging to avoid generating excessive packaging waste.	The following parameters: Hardness (Total, Calcium, Magnesium) Chloride (Cl^-) Nitrate (NO_3^-) Nitrite (NO_2^-) Ammonia (NH_3/NH_4^+) Phosphate (PO_4^{3-}) Sulphate (SO_4^{2-}) Fluoride (F^-) Iron (Fe)	Water quality results incorporated into monthly reports submitted to the AfDB	Bi-annually starting during construction and continuing throughout construction	Contractor, PIU Quarterly water testing throughout construction	Water Quality Tests $5,000 Nle115,000 Waste Management $6,000 Nle138,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Use construction materials with recycled content whenever possible and in compliance with accepted standards. • Contract a private waste disposal company to transport and dispose of solid waste from the site. • Provide adequate personal protective equipment to all workers. • Create awareness amongst the workers on the proper and safe disposal of waste and recycling of solid waste. • Fuel and lubricant leaks from vehicles and other machinery shall be immediately rectified. • Any contaminated waste stockpiled separately and disposed by an EPA licensed waste contractor. • Ensure mechanisms exist for the community to raise any complaints or feedback concerning the waste disposal by the contractor. • Do not dispose of anything in nearby streams. • Monitor downstream water quality routinely to ensure they	Manganese (Mn) Sodium (Na^+) Potassium (K^+) Heavy Metals (e.g., Lead, Arsenic, Cadmium, Mercury, Chromium, Zinc) MOU/Agreement signed with EPA licensed waste contractor Waste management grievances tracked in the grievance register				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		stay within the established baseline where appropriate. • Make temporary drains as necessary to avoid waterlogging or erosion. These must be adequate for accumulated runoff water as well as rainfall.					
Rehabilitation or construction of wharf facilities	Localized erosion and habitat disturbance resulting from wharf rehabilitation or construction activities	• Use sediment control measures (e.g., silt curtains, containment barriers) • Minimize vegetation removal at riverbanks • Limit works to dry-season periods to reduce turbidity • Prioritize rehabilitation of existing wharfs over construction of new wharfs	• Prescence of cleared and unutilised land • Prescence of erosion control measures where necessary	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	During construction or rehabilitation of wharf facilities	Contractor, PIU	$5,000 Nle115,000
Operation and Maintenance Phase							
Farming operations (planting, harvesting)	Degradation of soil fertility caused by the overuse or improper application of fertilizers Loss of biodiversity resulting from the excessive or inappropriate use of pesticides	• Promote conservation farming techniques, crop rotation, and agroforestry • Annual soil tests to monitor nutrient levels and adjust fertilizer application accordingly • Schedule fertilizer applications to coincide with the crop's growth stages, optimizing	The following parameters: pH, EC, N, P, K	Soil analysis results incorporated into monthly reports submitted to the AfDB	Annual soil quality test commencing with start of farming operations	PIU, MAFS Extension Officers	$20,000 NLe 460,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		nutrient uptake and minimizing excess accumulation • Manage crop residues effectively to improve organic matter content and nutrient recycling • Training of farmers on use of agrochemicals. • Implement Pest & Vector Management Plan					
Agrochemical use	Pollution of water bodies from fertilizer and pesticide runoff, leading to eutrophication, death of aquatic organisms, and overall degradation of water quality	• Enforce training on safe agrochemical handling; promote Integrated Pest Management (IPM) • Provide extension services to ensure that fertilizer application is optimized (quantity, timing, type, etc.), reducing runoff and eutrophication risk. • Utilize slow-release fertilizers reducing the risk of leaching and runoff. • Implement Pest/Vector management Plan to regulate chemical use. • Employing targeted and selective application of pesticides, using only when necessary.	Number of farmers trained on safe agrochemical use Water quality tests for N,P,K	Monthly reports to AfDB	Implementation throughout farming operations	MAFS Extension Officers, PIU	$50,000 Nle460,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Training farmers on correct pesticide application methods to minimize drift and runoff.					
Small-scale irrigation	Over-abstraction of water resources leading to a decline in groundwater tables and reduced downstream flow volumes in surface water bodies	• Monitor abstraction rates; • Establish community water management committees • Implement rainwater harvesting where feasible • Implement efficient water management practices to minimize evaporation losses.	Grievance logs: Numbers of complaints related to water use or abstraction Establishment of water management committees	Monthly reports to AfDB AfDB Supervision Missions Environmental and Social Performance Audits	Implementation to start during planning for irrigation with formation of water management committees and continue throughout farming operations that include irrigation.	PIU, EPA, Ministry of Agriculture, NWRMA, Water Users Association Implementation to start during planning for irrigation with formation of water management committees	$7,000 Nle161,000
ATC and AC operations	Environmental degradation resulting from improper disposal of rice husk and other organic waste products generated during rice production	• Explore alternative uses for rice husk and other residues, such as in the production of bioenergy, biofuels, or as raw materials for other industries. • Implement composting programs to convert organic residues into nutrient-rich compost • Raise awareness among local communities about the importance of proper waste	No evidence of haphazard disposal of organic waste from rice production	Site inspections by PIU/MAFS Monthly reports to AfDB AfDB Supervision Missions Environmental and Social		PIU, ATC Management, Ministry of Agriculture	$8,000 Nle184,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		management and the potential uses of agricultural residues. • Implement waste management plan		Performance Audits			

Transportation of produce from Farm to ATC and ATC to AIH.	Increase in road traffic accidents and vehicular emissions due to elevated transport activities associated with the project	• Vehicle maintenance programs; driver training on road safety and load management
		• Optimization of routes and schedule of transport
		  • Discourage nighttime transportation
		• Development and implementation of a Transport plan.
		• Conduct public awareness on transportation
		• Enforce speed limits
		• Provide training to drivers on
		  • Load management
		  • Fatigue management
		• Encourage regular servicing of vehicles
			Number of transport accidents attributed to Project;
			Vehicle maintenance logs
			Number of drivers trained on fatigue management, load management, etc
				Monthly reports to AfDB
				AfDB Supervision Missions
					Implementation throughout operations	PIU, Local Transport Operators	$5,000
							Nle115,000

Operations and Maintenance	Occupational health and safety impacts arising from the use of heavy equipment during planting, harvesting, and primary processing	• Provide hearing protection where necessary (when sound level over 8 hours reaches 85 dB(A)). • Monitor weather forecasts for outdoor work and adjust work and rest periods to ensure	Incident / accident statistics / reports Number of OHS related grievance received vs resolved.	Monthly reporting to PIU by private sector	Implementation to start with commencement of farm and ATC operations	PIU, Tractor owners and operators, ATC operators	$5,000 NLe115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	activities at Aggregation and Transformation Centres (ATCs)	employees are safe and comfortable. • Provide temporary shelters or rest areas for the workforce. • Ensure that workers have an adequate drinking water supply. • Provide training and licensing for industrial vehicle operators to ensure safe vehicle operation and establish clear rules and procedures for vehicle use. • Implement quality control and maintenance programs to ensure equipment is in good working order and reduce the risk of accidents due to equipment failure. • Ensure that provisions for reporting incidents, accidents, and dangerous occurrences are in place. • Ensure that workers undergo safety inductions. • A well-stocked first aid box, which is readily available and accessible, should be provided on the site premises. • Emergency telephone numbers, such as those for the ambulance and fire department, should be	Industrial vehicle operators properly licensed Evidence of initial OHS training (induction) for all workers Evidence of ongoing OHS related training Evidence of training provided to workers on communicable diseases	Monthly reports to AfDB AfDB Supervision Missions			

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		adequately and prominently displayed. • Signs such as "NO SMOKING" must be prominently displayed within the sites, especially in parts where flammable materials are stored. • Enforce the strict adherence to standard operating procedure for all work • Guard machines and equipment to protect workers from injury. • Provide dust masks for operators working in dusty conditions such as rice husking. • Provide workers with awareness training on preventing infection from diseases such as influenza, typhoid, and sexually transmitted diseases. • Ensure well maintained and clean gender segregated sanitation facilities, including handwashing stations, are available on site. Facilities to include constant running water.					
	Improved household and community revenue resulting from increased	• Employment on farms to prioritise locals • Training to be provided to community member to upskill	Increased household incomes	Community interviews and economic surveys	Sample size of participating households costs for	PIU, Ministry of Agriculture	$6,000 NLe138,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	rice yields in participating communities	them for more intensive rice cultivation and associated industries • Continued support from MAFS extension services to help maximise yield and provide farmers with advice on agrochemicals usage, seed varieties, weather and planting times.			recurring economic surveys. First survey conducted prior to the first harvest and continued annually throughout project.		
ATC and Tractor operations	Labour rights violations, including child and forced labour, within project-related activities Delayed or partial payment of wages may lead to worker grievances and workplace conflict Discrimination in employment practices, particularly against women and persons with disabilities.	• Ensure workers' contracts stipulate the expected remunerations, duration, period, and working conditions. Workers are to be aware of the details of their contracts. • Ensure the workers' payment rates meet the national standards for each job category/type. • Ensure timely payments of salaries • Ensure Provision of Workers' Grievance Redress Mechanism (GRM). • Operators should develop and implement clear equal employment opportunity conditions that explicitly prohibit	Employment records Signed employment contracts Signed CoCs Number or worker GRM cases received vs resolved Percentage of women employed	Inspection of employment records compared against signed contracts and CoCs Interviews of workers to determine whether they have signed contracts and CoC Monthly reports to AfDB	Employment data collected monthly from operators Bi-annual audits	Operators of ATCs and Tractors	No additional cost

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		discrimination based on gender or disability. • Operators to meet minimum 30% requirement of female employment as stipulated by national legislation • All workers are to sign CoCs. • Develop and enforce a code of conduct prohibiting child and forced labour.					
	Contamination of soil and both surface and groundwater due to improper disposal of fuel and lubricant waste	• Fuel and lubricant leaks from vehicles and other machinery shall be immediately rectified. • Any contaminated waste stockpiled separately and disposed by an EPA licensed waste contractor. • Fuel storage sites to be bunded to 120% capacity of fuel containment	Oil sheen or discoloration on nearby water bodies Existence and condition of containment measures (e.g., bunds, drip trays, oil separators) Volume of used oil and lubricant disposed via EPA licensed contractors	Visual inspections and photographic evidence during site audits Site inspection checklists; engineering supervision reports Waste manifests and receipts from EPA-licensed hazardous waste disposal companies	Implementation to start with operation of ATCs	ATC operators Bi-annually during operations	$10,000 NLe 230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
River Transportation to and from processing centres	Water pollution and aquatic disturbance during riverine paddy transport	• Provide spill prevention training for boat operators • Prohibit refueling or maintenance near water • Monitor turbidity and fuel residues near loading areas • Fuel storage sites to be bunded to 120% capacity of fuel containment	Oil sheen or discoloration on nearby water bodies Existence and condition of containment measures (e.g., bunds, drip trays, oil separators) Operator training records Fuel spill incident reports Water quality test results (see earlier sections)	Visual inspections and photographic evidence during site audits Operator training reports Incident reports Water Quality results	Training of operators to be conducted before operation of AIH and ATCs.	PIU, Wharf Captain	$5,000 Nle115,000
	Unsafe navigation or boat-related accidents in riverine transport corridors	• Require operator licensing and safety training • Equip boats with life jackets and safety gear	Number of trained operators Inspection of boat safety gear Complaints or incidents recorded	Training records Visual inspections of safety gear on boats Incident accident reports	Operators trained prior to the start of river transportation Life jackets provided before start of river transport	PIU, Local Wharf Captain, Water, Sierra Leone Maritime Administration	$10,000 Nle230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
				Grievances related to safety of river transport			
Decommissioning and Restoration Phase							
Demolition of ATC/AC	Generation of noise, dust, and solid waste, along with occupational health and safety concerns during demolition of facilities	Noise • Limit demolition to daylight hours (typically 08:00–17:00) to reduce disturbance. • Use well-maintained and quieter equipment fitted with silencers/mufflers. • Install temporary noise barriers or acoustic screens around the demolition site, especially near sensitive receptors (e.g., homes, schools, clinics). • Monitor ambient noise levels regularly and compare against permissible limits (e.g., 70 dB(A) daytime). • Notify nearby communities in advance about noisy activities and duration. Dust • Wet down demolition sites to supress dust • Provide dust masks to workers Waste	Noise levels (dB) Air Quality (PM2.5 & PM10) Waste disposal manifests Incident / accident statistics Visual inspections of demolition site	Air and Noise monitoring reports Inspection of waste disposal manifests Site inspections	Training and hazard assessment to start prior to conducted first. Followed by approval of demolition plan prior to the start of demolition	PIU, MAFS, ATC Operators, EPA	$14,000 Nle322,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Separate waste into appropriate waste streams • Prioritise reuse and recycling of waste. • Hire EPA licensed waste company for disposal of all contaminated waste OHS • Provide training to all workers involved in demolitions • Provision of appropriate PPE for demolition staff • Restrict access to trained and authorised personnel only • Conduct pre-demolition hazard assessment and develop demolition plan taking into consideration identified hazards					
	Restoration of natural vegetation to project areas	• Regrade sites • Restore topsoil • Replant native vegetation • Monitor vegetation establishment • Check soil quality	Vegetation cover Vegetation survival rate; Soil quality assessments (N,P,K)	Site inspections Results of soil quality tests	Six months and one year after completion of restoration activities	MAFS	$20,000 Nle460,000
					Total Estimated Budget		**$266,000** **NLe6,118,000**

ES7.3 Key ESMP Implementation Indicators

- Air Quality: PM2.5 & PM10 levels , SO2, NO2, VOCs
- Water Quality parameters: Nitrates (NO3-N), phosphorus (P), potassium (K), pH, electrical conductivity (EC), and total dissolved solids (TDS).
- Soil Quality: pH, EC, N, P, K
- Household income levels (recurrent monitoring throughout project lifetime)
- Greivance redress (accessibility of grievance mechanism , time taken to resolve grievances, percentage resolved) during all project phases

ES7.4 Budget

A budget of $393,250 is estimated for the implementation of this ESMP over the course of the SAPZ Project.

Table 1: Budget Summary

Project Stage	Estimated ESMP Cost (USD)	Estimated Cost (NLe)
Preconstruction Phase	**40,000**	**920,000**
Stakeholder Consultations and farmer Identification	20,000	460,000
Screening of sites for Environmental Risks	15,000	345,000
Stakeholder consultations prioritizing vulnerable groups	5,000	115,000
Construction Phase	**66,000**	**1,518,000**
Air and Noise Monitoring during land development and ATC construction	10,000	230,000
Monitoring of land clearance and tree planting	8,000	184,000
OHS Measures: PPE, Signage, safety training, fire extinguishers, gender segregated toilets (with water and soap)	10,000	230,000
Community Safeguards: signage, flag men, community awareness, site demarcation, coordination with government bodies such as Sierra Leone Police and Sierra Leone Road Safety Authority	5,000	115,000
Traffic Management	10,000	230,000
GBV awareness training to workers and the community	5,000	115,000
Water Quality Tests	5,000	115,000
Waste Management	6,000	138,000
Sediment Control during rehabilitation or construction of wharf facilities	5,000	115,000
Operations and Maintenance Phase	**126,000**	**2,898,000**
Soil Quality Testing	20,000	460,000
Water Quality Testing	50,000	1,115,000
Small Scale Irrigation: Set up and operationalization of Water Management Committees , rainwater harvesting	7,000	161,000
Waste Management: Alternative uses of for organic waste i.e. composting, animal feed; Waste management including contaminated waste	18,000	414,000
Traffic Management	5,000	115,000
OHS Measures: Mechanised farming and ATC operations	5,000	115,000
Annual household economic surveys	6,000	138,000
River transport: pollution control, training, health and safety	15,000	345,000
Decommissioning Phase	**34,000**	**782,000**
OHS: Demolition of ATCs: PPE, Air and Noise monitoring, dust suppression, training of workers	14,000	322,000
Restoration of natural environment:	20,000	460,000
Environmental & Social Performance Audits	**40,000**	**920,000**
Grievance Redress Mechanism Implementation	**87,250**	**2,006,750**
Total Estimated Cost	**393,250**	**9,044,750**

1 INTRODUCTION

1.1 PROJECT OVERVIEW

The African Development Bank is supporting the Government of Sierra Leone with 75 Million United States Dollars for the implementation of the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project**.** The project development objective is to contribute to inclusive and sustainable agro-industrial development in Sierra Leone, to reduce rice imports, create jobs, and alleviate poverty. This will be achieved through enhancing the enabling environment to support the development of a private sector-led, Government-enabled modern rice sector through strengthening production and productivity, modern processing, and the marketing of 'import grade' milled rice to national production per annum towards domestic rice self-sufficiency.

The Project is well aligned with recently approved Feed Salone Strategy (2023 - 2028), which was launched in October 2023. The Feed Salone targets achieving food security and equitable economic growth and building resilient food systems through five strategic objectives: reducing import dependency, boosting export earnings, job creation, alleviating hunger and malnutrition, and fostering climate resilience. At the sector level, the Project is in accordance with the National Strategic Agriculture Development Plan (NSADP) (2010-2030) which is Sierra Leone's in-country version of the Comprehensive African Agriculture Development Programme (CAADP) as well as its National Climate Change Policy (2015), National Climate Change Strategy and Action Plan and National Determined Contributions (2016), all of which prioritize climate-resilient agricultural production. It is also consistent with National Agricultural Transformation Program (NAT 2023) which focuses on developing agricultural value chains, making available improved inputs (seeds and fertilizers), increasing productivity and production, and establishing crops and livestock processing zones across the country

1.2 PROJECT GOAL

The goal of the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project is to contribute to inclusive and sustainable agro-industrial development in Sierra Leone. This overarching goal targets the reduction of rice imports, the creation of employment opportunities, and the alleviation of poverty, particularly among smallholder farmers, women, and youth. The project is designed to achieve food self-sufficiency through a private-sector-led, government-enabled modernization of Sierra Leone's rice value chain.

1.3 SPECIFIC OBJECTIVES

The project aims to achieve the following specific objectives:

- **Strengthen agricultural productivity and production systems** by introducing climate-smart rice varieties, promoting mechanization, and enhancing irrigation infrastructure.
- **Develop modern rice processing infrastructure** to produce high-quality, import-grade milled rice.
- **Facilitate market access and commercialization** for rice farmers and agribusinesses through aggregation, branding, and marketing initiatives.
- **Promote private sector investments** in agro-processing and related infrastructure through the development of Agro-Industrial Hubs (AIHs) and Agricultural Transformation Centres (ATCs).

- **Enhance resilience to climate change** and promote environmentally sustainable agricultural practices.
- **Empower women and youth** by improving their participation and leadership across the rice value chain.

1.4 SCOPE OF THE ESIA

This ESIA covers the implementation of the SAPZ Project in Port Loko District. This covers all activities of the SAPZ project with the exception of the Agro-Industrial Hub which will be constructed in Mambolo Chiefdom, Kambia District.

1.5 OBJECTIVES OF THE ESIA

The overall objective of this Environmental and Social Impact Assessment (ESIA) is to identify, assess, and propose measures to avoid, minimize, mitigate, and manage the potential environmental, social, health, and safety impacts associated with the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project, in line with the African Development Bank's 2023 Integrated Safeguards System (ISS) and the Sierra Leone Law. :

- Describe the project and its context (physical, biological, socio-economic, and cultural environment), establishing a detailed environmental and social baseline against which project impacts can be assessed
- Identify and assess the likely positive and negative environmental, social, health, safety, and climate change-related impacts of the project, including cumulative and indirect impacts during all phases of the project.
- Develop appropriate mitigation measures to avoid, reduce, remedy, or compensate for adverse environmental and social impacts, in line with the mitigation hierarchy (avoid ➔ minimize ➔ restore ➔ offset), as required by the AfDB ISS and Sierra Leonean law.
- Prepare an Environmental and Social Management Plan (ESMP) with specific, measurable, achievable, relevant, and time-bound (SMART) actions, including monitoring indicators, responsibilities, budgets, and institutional arrangements.
- Address cross-cutting issues such as:
    - Climate change adaptation and resilience
    - Gender equality and women's empowerment
    - Youth employment promotion
    - Human rights, including child labour and vulnerable groups
    - Occupational and community health and safety
- Ensure meaningful stakeholder engagement throughout the ESIA process, including the disclosure of information and integration of feedback from affected persons and other stakeholders, in compliance with the AfDB's ISS Stakeholder Engagement requirements.
- Identify a grievance redress mechanism (GRM) to allow communities and other stakeholders to raise concerns and seek redress throughout the project lifecycle.
- Ensure compliance with national environmental laws and regulations of Sierra Leone, relevant international agreements, and the AfDB ISS 202 Operational Safeguards (OS1–OS).
- Contribute to sustainable development outcomes by enhancing positive impacts such as local employment creation, private sector investment, food security, and rural economic development in the project area.

1.6 STUDY METHODOLOGY

This ESIA Report was created through an integrated approach that included data and information evaluation, field investigations, expert consultations, interviews, and discussions with stakeholders and affected people. The methodology used for the study is briefly described below.

1.6.1 Literature Review

The analysis began with a thorough review of documents and literature regarding proposed developments for the SAPZ project. This included an assessment of key national policies and legislation, AfDB ISS, and applicable international conventions and treaties to which Sierra Leone is a party, among others. The legislation and policies guided the ESIA study in determining the legal scope and ensuring that the issues raised were addressed during the study.

1.6.2 Field Visits and Scoping

Extensive field visits were conducted at the proposed project sites in Port Loko District. The visits focused on biophysical and socio-economic aspects. These included:

- Existing rice fields in the areas of intervention.
- Meeting Ministry of Agriculture & Food Security Stakeholders at the district and community levels
    - District Agricultural Officers
    - District Field Extension officers from the project communities.
- Evaluation and assessment of biophysical and socio-economic aspects of the proposed project sites, including:
    - Sensitive environmental and social receptors,
    - Biodiversity,
    - Land use and development trends,
    - Hydrology,
    - Landscape and climate conditions.

The visits allowed examining potential alternatives and approaches, among other issues, to mitigate negative environmental and social consequences. The field trips also helped with:

- Identifying and precisely defining the project's areas of influence.
- Evaluating the present state of the ecosystem.
- Determine the potential economic and social impacts of the Project on host communities

1.6.3 Consultations

During field trips, consultations and socioeconomic assessments were primarily conducted using methods such as public gatherings, focus group talks, and individual (one-on-one) sessions. These consultations included government Ministries, Departments and Agencies such as the Rokpur Rice Research Stations, the Meteorology Agency, the National Water Resource Agency, Environment Protection Agency, Njala University's Agricultural Department, Ministry of Agriculture and Ministry of Labour; local farmers and community members at the project locations; the private sector; and Non-Governmental Organisations and Community Based Organisations.

1.6.4 Impact Assessment

The impact assessment phase includes a review of potential Project-related impacts, as well as an assessment of the sensitivity of the receiving natural and human environments. This is based on data obtained through:

- Baseline studies (to determine the sensitivity of the receiving environment); and

- Collaborated with the project team to create a project description, identify potential E&S consequences, and evaluate alternatives (where applicable).

1.7 Assumptions and Limitations

This report is based on the following assumptions and limitations.

- ✓ It should be noted that data was initially collected for a proposed AfDB rice project in the same locality that was cancelled in 2024. Those studies form the core of this ESIA with additional assessments conducted to bridge any gaps in the first quarter of 2025.
- ✓ To address seasonal and temporal constraints during the field evaluation, site observations were compared to desktop literature.
- ✓ Due to the nature of sampling and the secretive nature of some fauna it is to be expected that not all fauna present in the area were sighted during the field assessment. Efforts are made to account for this through visually aided interviews at the community level to identify species present in the district.

1.8 Site Surveys and Specialist Studies

The ESIA includes data from site surveys conducted between July to October 2024 and the first half of2025 to gather baseline data in the project areas. The 2024 data was sourced from the preparatory studies for the REWARD Project, a rice project in the same localities that did not make it past the preparation stage. These data sets include the socio economic survey and the soil sampling. The ESIA included the following specialist studies:

- **Biodiversity** : Field investigations and desktop assessment
- **Groundwater:** Desktop and baseline measurements;
- **Noise:** Baseline measurements;
- **Socioeconomic assessments:** including gender and child labour impact assessments, using household surveys and comprehensive assessments. (2024)
- **Surface water:** Desktop and baseline assessment;
- **Weather and Climate**: Desktop assessment
- **Soils data**: Baseline assessment (2024)
- **Air Quality**: Baseline assessment

2 POLICY, LEGAL & INSTITUTIONAL FRAMEWORK

2.1 NATIONAL POLICIES, PLANS & STRATEGIES

2.1.1 Feed Salone

In 2018, the Government developed the National Agricultural Transformation Programme (NAT 2023), and implemented a private sector led approach dubbed 'The Agriculture Policy Shift'. This strategy laid the foundation for the prioritisation of agriculture resulting in the 'Feed Salone' as one of the Governments five priority areas (Big 5 Game Changers).

This Strategy underscores the Government of Sierra Leone's steadfast dedication to agricultural transformation and the pursuit of food sovereignty. Recognizing the pivotal role that agriculture plays in the nation's economy, the Feed Salone Strategy aims to boost agriculture productivity to fuel inclusive growth, increase access and availability of locally produced nutrient dense and safe food, reduce our dependence on food imports, reduce hunger, increase export earnings, create jobs, and build resilient food system. The Feed Salone Strategy is championed by H.E. President Bio, guided by the Presidential Council, and executed by the Ministry of Agriculture and Food Security.

2.1.2 National Environmental Policy, 1994

The Sierra Leone National Environmental Policy (1994) seeks to achieve sustainable development through the implementation of sound environmental management systems that will encourage productivity and harmony between man and his environment. It also promotes efforts to prevent or eliminate damage to the environment and biosphere stimulate the health and welfare of nationals and serves to enrich the understanding of ecological systems and natural resources important to the Nation. The policy also addressed issues on the following:

- Land Tenure, Land Use and Soil Conservation;
- Water Resources Management;
- Forestry and Wildlife;
- Biodiversity and Cultural Heritage;
- Air Quality and Noise;
- Sanitation and Waste Management;
- Toxic and Hazardous Substances;
- Working Environment (Occupational Health and Safety);
- Energy Production and Use.
- Settlements, Recreational Space, and Greenbelts.
- Public Participation.
- Quality of Life.
- Gender Issues and the Environment.
- Institutional and Government Arrangements.
- Legal Arrangement.

2.1.3 National Strategic Agriculture Development Plan (NSADP) (2010-2030)

The National Sustainable Agriculture Development Plan (NSADP) provides the roadmap for moving agriculture, forestry and fisheries forward to both address Sierra Leones growing needs due to population growth and to create additional income to the national economy. The plan identifies the need to shift towards photo-insensitive rice varieties for more variety in planting time to adjust for erratic rainfall (climate change).

2.1.4 The Sierra Leone Conservation and Wildlife Policy, 2010

The Sierra Leone Conservation and Wildlife Policy (2010) aims to achieve sustainable, rights-based management of the country's wildlife resources for biodiversity conservation and economic, social, and cultural benefits. It promotes integrated, community-driven conservation both inside and outside protected areas.

Key principles include sustainable wildlife management, equitable benefit sharing, rights-based governance, culturally sensitive approaches, and capacity building. The Policy emphasizes the establishment of a representative network of Wildlife Conservation Areas aligned with IUCN standards, adaptive management practices, promotion of ecotourism, and compliance with international conventions such as the Convention on Biological Diversity (CBD), CITES, and the Ramsar Convention. It also highlights challenges like poverty, land tenure issues, limited institutional capacity, and conflicts between sectoral mandates.

2.1.5 Sierra Leone Forestry Policy, 2010

The Sierra Leone Forestry Policy (2010) sets out a vision for sustainable, rights-based forest management that contributes to economic development, poverty reduction, environmental conservation, and climate resilience. Guiding principles include sustainability, equitable benefit sharing, rights-based governance, integration across sectors, research-based decision-making, and public participation.

The Policy provides for:

- Sustainable management of Forest Reserves, community forests, and private forests.
- Promotion of sustainable forest-based industries, including timber and non-timber products.
- Strengthening ecotourism as an alternative livelihood strategy.
- Enhancing forest law enforcement and compliance with international agreements such as CBD, UNFCCC, and CITES. Challenges addressed include deforestation, competing land uses, weak institutional capacity, ambiguous land tenure, poor public awareness, and insufficient research data.

2.1.6 National Biodiversity Strategy and Action Plan, 2017

The Sierra Leone Biodiversity Strategy and Action Plan outlines a series of measures and mechanisms designed to conserve and encourage the sustainable use of the country's biodiversity. The proposed actions address several key thematic areas, including terrestrial biodiversity, inland water ecosystems, forest biodiversity, marine and coastal biodiversity, and agricultural biodiversity.

2.1.7 National Lands Policy 2015

The National Lands Policy aims to have an effective land tenure and management system that will provide for clearly defined ownership forms and rights, tenure security, effective and transparent land administration, and, foremost, ensure equitable access to land for all citizens and stimulate responsible investment for the nation's continued development. A key objective of the policy is to bring order and discipline to the land market in order to address issues such as land encroachment, unauthorized development projects, illegal land sales, document falsification and multiple registrations, land speculation, and other forms of land-related fraud.

The policy mandates that all land and water resource development activities must comply with the country's environmental laws. If an Environmental Impact Assessment (EIA) is required, it must be submitted. Additionally, environmental protection will be enforced under the "polluter pays" principle. The National Land Policy is guided by the following principles:

- Political principles and conflict sensitive principles
- Socio-economic principles
- Economic principles
- Principles of consultation and participation
- Cultural principles
- Gender equality principles
- Administrative principles/Implementation strategy principles
- Monitoring and evaluation and policy adjustment principles

2.2 NATIONAL LEGISLATION

2.2.1 The Constitution of Sierra Leone, 1991

The Sierra Leone constitution recognizes the fundamental human rights and freedoms of the individual such as the right to life, of liberty, of free movement, security of the person, property and protection of law, freedom of conscience, expression and of assembly and association, protection from the deprivation of property without compensation, and from discrimination. Article 17 specifically refers to the prosecution of environmental offences. Article 18 states that" Constitutional freedom of movement may be restricted for, among other things, the conservation of the natural resources, such as mineral, marine, forest and other resources of Sierra Leone". Furthermore, Article 21 concerns protection from deprivation of property stating that no property of any description shall be compulsorily taken possession of, and no interest in or right over property of any description shall be compulsorily acquired, except where land is required by the GoSL in the public interest.

2.2.2 The Environment Protection Agency Act (EPA) 2022

The Environment Protection Agency Act, 2022 serves as Sierra Leone's primary legislation for environmental protection in Sierra Leone. The Agency was established in 2008 by Environmental Protection Agency Act of 2008 which was amended in 2010 and operates under the oversight of a Board of Directors. This Board is responsible for supervising and managing the agency while coordinating with other government bodies to ensure effective environmental governance.

Part VI of the act specifically deals with Environmental Impact Assessments. This section of the Act outlines the procedures and requirements for obtaining an environmental license, ensuring compliance with approved Environmental Impact Assessment (EIA) studies. It also defines the responsibilities and obligations of both the license holder and the Board of Directors once an environmental license has been issued.

The first schedule outlines the projects that require an EIA license, the second schedule details the factors determining whether a project necessitates an EIA, and the third schedule specifies the contents of the Environmental Impact Assessment.

The First Schedule of the EPA Act of 2022 states that the following types of projects require an EIA License:

- Land use change (e.g. conversion of land to large scale agricultural production, forestry or to pasture land, rural development, timber production etc.);
- Changes in farming and fisheries practices (e.g. introduction of new crops, large scale mechanisation or use of chemicals in agriculture etc.);
- Exploitation of hydraulic resources (e.g. dams, drainage and irrigation projects, water basin development, water supply);
- The use of agrochemicals.

As such the planned project activities will be required to obtain environmental impact assessment permit.

2.2.3 The Environment Protection Agency (Agricultural and Agro-Based Industrial Activities) Regulations, 2023

These Regulations deal primarily with Agricultural and Agro-Based Industrial activities compliance with the Environment Protection Agency Act of 2022. These regulations guide / expand on the provisions of the EPA 2022 Act as directly related to the agricultural sector:

- Determination of the level of environmental assessment required for the acquisition of an environmental permit by a given project, if any.
- Steps in the license acquisition process and EPA response times
- Further builds on the requirement for stakeholder engagement laid down in the EPA Act, 2022.
- Restricts the implementation of activies near areas of conservation and prohibits the issuance of environmental licenses to projects with significant adverse impacts on conservation areas.
- Establishes the requirement of agrochemical management plans for projects involving extensive use of agrochemicals.

2.2.4 The Customary Land Right Act 2022

The Customary Land Right Act 2022 seeks to provide for the protection of customary land rights, the elimination of discrimination, and the management of land subject to customary law. This Act provides for free prior and informed consent for all investments; access to land for all citizens; equal rights for women, including youths and persons with a disability; local land management structures; protection of biodiversity and ecological areas; and mandates the formation of village, town and chiefdom land committees to handle grievances.

Relevance to the Project: This legislation seeks to address discrimination and improve consultation concerning access to land or acquisition of land and Biodiversity conservation. This Act gives vulnerable persons, including women and youth, their say in land acquisition for development projects and supports grievance redress. It also creates a pathway for resolving land related grievances by mandating the formation of village, town, and chiefdom land committees to resolve these grievances.

2.2.5 Local Government Act, 2004 and Amended Act of 2017 and 2022

This Act deals with the establishment and operation of local councils around the country to enable meaningful decentralization and devolution of Government functions. It stipulates that a local council shall be the highest political authority in the locality and shall have legislative and executive powers to be exercised in accordance with this Act or any other enactment.

Relevance to the Project: Local councils are the highest political body at the local (district) level and are generally responsible for promoting development within their respective districts. As the SAPZ Project will be implemented within Kambia and Port Loko districts the District Council of Port Loko and Kambia should be consulted during throughout project planning and implementation.

2.2.6 Forestry Act, 1988 as Amended in 2022

This Act seeks to ensure forest protection and management and makes provision for the conservation of natural forest estate, including upland and mangrove forests through regulation and community forestry systems. The chief conservator has the role of conserving the nation's forests, including a primary and secondary forest in Sierra Leone, ensuring sustainable availability of forest

products, and protecting the soil and water resources that serve as natural resources for the forest ecosystems.

Part V, section 18 of this Act requires that the chiefdom council of any chiefdom may agree with the Chief Conservator providing for the constitution as a community forest, of any land within the chiefdom, subject to the approval of the District Officer for the District in which the land is situated. S18(2) of the Forestry Act, 1988 states the composition of the agreement.

In this Act, part VI, section 21(2) indicates that no protected forest must be cut, burned, uprooted, damaged, or destroyed, except with written permission from the Chief Conservator. The Project area does not fall in either protected or community forests.

Relevance to the Project: Some of the project communities are coastal areas especially the areas that are found within the Kambia and Port Loko Districts that house patches of mangroves which form part of the country's biodiversity. Therefore, its protection or conservation is crucial, thus the importance of this legislation to this project. The project activities should be restricted to the project site.

2.2.7 The Forestry Regulations, 1989

This regulation provides for the management and conservation of public and private forest resources in Sierra Leone and for the transport and sale of forest products. The regulation concerns management plans for the exploitation of private forests. An inventory of forest resources shall be made before exploitation (reg. 4). Regulation 23 concerns the sale of produce of national forests by the Chief Conservator. Exploitation of National Production Forests may be given in concession by way of tender pursuant to regulation 28. Village Forest Associations shall be the recognized rural institutions through which community forests may be developed (reg. 42). (completed by 19 Schedules)

Sacred bushes are protected by the stipulated regulations of section 40, whereby clearance of vegetation from land designated as sacred bush, is prohibited except by clearance authority from the Director of Forest Division.

2.2.8 Factories Act,1974

The Factories Act of 1974 addresses worker health and safety issues associated with factories. The Act also details provisions for machine safety, safe working conditions, sanitary facilities, periodic inspections, factory registration, and guidelines for reporting injuries, accidents and industrial diseases.

Relevance to the Project: The Agro-Industrial Hub and Agricultural Transformation Centres to be developed as part of this Project meet the criteria of a Factory as defined by this Act. .

2.2.9 Water Resource Management Agency Act, 2017

The Water Resource Management Agency Act, 2017 (Act No. 5 of 2017) established the Water Resource Management Agency (WRMA) as the lead institution responsible for the sustainable management, protection, and coordination of water resources in Sierra Leone. The Act provides the legal framework for integrated water resource management (IWRM) and aligns with the national water policy to ensure equitable, efficient, and environmentally sound use of water resources across all sectors.

Under the Act, the WRMA is empowered to:

- Regulate the allocation and use of surface and groundwater resources through a permitting and licensing system;
- Monitor water quality and quantity to ensure compliance with environmental standards;
- Promote the sustainable use and protection of catchments, aquifers, and wetlands;
- Coordinate with relevant agencies on issues related to pollution control, water conservation, and climate change adaptation.

For projects like the SAPZ, which involve agricultural intensification, water abstraction for irrigation, and agro-industrial processing, compliance with the provisions of the WRMA Act is critical. The project must:

- Seek permits for any abstraction or diversion of surface or groundwater;
- Implement pollution prevention and water conservation measures in line with national standards;
- Cooperate with the WRMA in the monitoring and reporting of water use and impacts;
- Avoid contamination of water bodies through proper management of agrochemicals, wastewater, and solid waste.

The Act also emphasizes public participation and the role of stakeholders in water governance, which aligns with the ESIA's objectives for inclusive and transparent environmental decision-making.

2.2.10 The Sierra Leone Meteorological Agency Act, 2017

The Sierra Leone Meteorological Act 2017 established the Sierra Leone Meteorological Agency. The Agency serves as the sole authority for the provision of meteorological and climatological services throughout Sierra Leone. Functions of the agency include but are not limited to the following:

- advise Government on all aspects of meteorology, climatology, climate change and other climate related issues;
- develop Government policy in the field of meteorology, climatology, climate change and other climate related issues;
- issue weather information and forecasts for the safe operation of air-crafts, ocean going vessels, oil rigs and all other socio-economic activities that require meteorological or climatology services
- monitor the meteorological and climatological components of environmental impact assessment, pollution, degradation and other concentrations;
- keep in an appropriate and safe archive all meteorological, climatological, climate change data and information for use on future planning, research and implementation of projects as may become necessary
- provide meteorological information, advice and warnings for agriculture, civil and military aviation, surface and marine transport, operational hydrology and management of energy and water resources, in order to mitigate the effects of natural disasters such as floods, storms, droughts and disease outbreak

2.2.11 National Development Induced Resettlement Act, 2023

This Act governs land acquisition, compensation, and resettlement processes with a development-oriented objective which includes livelihood restoration and community development initiatives. It ensures fair treatment of landowners and affected communities while promoting sustainable development.

2.2.12 The Gender Empowerment & Women's Empowerment Act, 2022

An Act to address gender imbalances by making provision for increased appointment of women to decision-making positions and structures so as to achieve at least 30% representation, to provide for the promotion of gender equality in employment in both the public and private sector.

2.2.13 The Employment Act, 2023

This Act provides for the consolidation and improvement of the law relating to labour and employment, and for all the matters necessary to promote equal opportunity and eliminate discrimination in employment and occupation. The Act applies to all employers and workers in Sierra Leone, excluding armed forces and police forces, and covers all pending employment related claims. The Act covers the following matters: business; contract of employment or service; earnings; discrimination; employer; equal remuneration; national minimum wage; strike; trade dispute; violence and harassment;

2.3 INTERNATIONAL STANDARDS

2.3.1 African Development Bank Group's Integrated Safeguards System 2023

The African Development Bank (AfDB) has an updated Integrate Safeguards System (ISS), published in 2023, which contains Operational Safeguards (OSs) to guide the safe development of projects it funds. The applicable policies are described in table below. The AfDB requirements are not inconsistent with the national requirements and therefore no implementation conflicts are foreseen.

AfDB Environmental and Social Operational Safeguards (OSs) applicable to the project	Description / Objective	Relevance or applicability to the project	Project's Responsibility/Requirement
OS1: Assessment and Management of Environmental and Social Risk and Impacts.	To ensure that environmental and social (E&S) risks and impacts are identified, assessed, and managed throughout the project lifecycle using the mitigation hierarchy. It aims to mainstream E&S considerations into decision-making processes and promote sustainable development outcomes, including the integration of climate change vulnerability and resilience.	According to **OS1**, which mandates the integration of environmental and social considerations into project planning and execution, the SAPZ Project must undertake a full Environmental and Social Impact Assessment (ESIA) and implement an Environmental and Social Management Plan (ESMP) to guide mitigation and monitoring. For major works a Contractor's Environmental and Social Management Plan (CESMP) is required, inclusive of sub-plans	Conduct ESIA and ESMP; implement CESMPs; integrate grievance redress, monitoring, and climate risk management.

AfDB Environmental and Social Operational Safeguards (OSs) applicable to the project	Description / Objective	Relevance or applicability to the project	Project's Responsibility/Requirement
		such as a waste management plan, grievance redress mechanism, emergency response procedures, and E&S monitoring framework, to ensure compliance throughout all project phases.	
OS2: Labour and Working Conditions	To promote fair, safe, and healthy working conditions and protect the rights of workers, including vulnerable groups. OS2 aims to ensure compliance with national labour laws and international standards, prevent child and forced labour, and promote occupational health and safety (OHS) in project activities.	According to **OS2**, which emphasizes fair labour practices and worker protection, the SAPZ Project must ensure that employment conditions for all workers—direct, contracted, skilled, or unskilled—adhere to national laws and international labour standards. The project will be required to develop a **Worker Code of Conduct** detailing acceptable behavior, non-discrimination, respect for local communities, and zero tolerance for child labour and sexual exploitation. Additionally, a **Labour Management Plan (LMP)** must be included in the CESMP, covering worker accommodation, occupational health and safety (OHS), worker grievance redress mechanisms, and periodic OHS training.	Develop Worker Code of Conduct, Labour Management Plan, and OHS Plan; ensure worker safety, training, and compliance with labour laws Ensure: • No forced labour • Discrimination due to ability, ethnic group, gender, religion, etc • Worker GRM implemented and functioning • No Child Labour • Etc
OS3: Resources Efficiency and	To encourage the efficient use of	According to **OS3**, which aims to reduce pollution	Implement Pest Management Plan;

AfDB Environmental and Social Operational Safeguards (OSs) applicable to the project	Description / Objective	Relevance or applicability to the project	Project's Responsibility/Requirement
Pollution Prevention and Management	resources (energy, water, raw materials) and reduce pollution to air, water, and land from project activities. The safeguard supports the adoption of technically and financially feasible pollution prevention and control measures aligned with Good International Industry Practice (GIIP).	and ensure sustainable use of resources, the SAPZ Project must implement practical measures to minimize emissions, manage waste, and promote energy and water efficiency during construction and operations. This requires the development of a **Pest Management Plan** covering the use and disposal of agrochemicals; a **wastewater and solid waste management strategy** for agro-processing operations; and incorporation of **energy-efficient systems** in ATC and AIH facilities, in line with World Bank EHS and WHO air quality standards.	manage waste, emissions, and resource use to meet WHO and EHS standards.
OS4: Community Health, Safety, and Security	To avoid or minimize the potential for community exposure to health and safety risks arising from project activities, infrastructure, and the influx of labour. The safeguard promotes proactive planning to manage risks such as traffic accidents, hazardous materials exposure, disease transmission, and security-related concerns.	According to **OS4**, which addresses risks posed to communities by project activities, the SAPZ Project must mitigate potential impacts arising from construction, vehicle traffic, hazardous materials, and labour influx. The CESMP must include a **Traffic Management Plan**, **Hazardous Materials Safety Plan**, and **Community Health and Safety Protocols**. Measures to prevent and respond to GBV/SEA/SH must also be incorporated, alongside **community-level emergency**	Prepare Traffic Management, Emergency Response, and Hazardous Materials Plans; manage labour influx and GBV/SEA/SH risks

AfDB Environmental and Social Operational Safeguards (OSs) applicable to the project	Description / Objective	Relevance or applicability to the project	Project's Responsibility/Requirement
		preparedness and **worker-community interaction protocols** to ensure the well-being of project-affected populations.	
OS6: Habitat and Biodiversity Conservation, and Sustainable Management of Living Natural Resources	To conserve biodiversity and protect ecosystem services critical to human wellbeing. This safeguard ensures that project activities avoid significant adverse impacts on natural habitats, critical ecosystems, and species, and that any use of natural resources is done sustainably.	According to **OS6**, which requires the protection of biodiversity and ecosystem services, the SAPZ Project must avoid or minimize degradation of critical habitats such as inland valley swamps, riparian zones, and secondary forest areas near project sites. The project must implement a **Pest and Vector Management Plan** to balance agricultural productivity with ecological integrity. Agrochemical use must be monitored to prevent contamination of adjacent ecosystems and ensure sustainable land use.	Avoid sensitive habitats; implement Pest and Vector Management Plan; prepare Biodiversity Action Plan if needed.
OS10: Stakeholder Engagement and Information Disclosure	To promote meaningful, inclusive, and continuous engagement with stakeholders, particularly affected communities, throughout the project cycle. It ensures transparency, responsiveness to stakeholder concerns, and informed participation in project design, implementation, and monitoring.	According to **OS10**, which mandates ongoing, inclusive stakeholder engagement, the SAPZ Project must actively involve local communities, landowners, women, youth, and vulnerable groups throughout the project lifecycle. A **Stakeholder Engagement Plan (SEP)** must be developed and implemented, supported by a **functional Grievance Redress Mechanism (GRM)** accessible to all	Implement SEP and GRM; conduct inclusive consultations; disclose ESIA and safeguard plans throughout the project.

AfDB Environmental and Social Operational Safeguards (OSs) applicable to the project	Description / Objective	Relevance or applicability to the project	Project's Responsibility/Requirement
		affected persons. Additionally, public disclosure of the ESIA and related plans, as well as the organization of **consultation workshops**, are required to maintain transparency and build project ownership among stakeholders.	

2.3.2 Other Relevant International Standards and Guidelines

In addition to the African Development Bank's Integrated Safeguards System (ISS, 2023), several international technical standards and best-practice guidelines are considered relevant to the environmental and social management of the SAPZ Project. These complementary instruments offer specific implementation guidance on air quality, food safety, occupational health, pesticide use, and community health risks important for agro-industrial operations.

2.3.2.1 World Bank Group Environmental, Health and Safety (EHS) Guidelines (2007)

The World Bank Group's Environmental, Health and Safety (EHS) Guidelines (2007) serve as internationally recognized technical reference documents. They are divided into General EHS Guidelines and Industry Sector Guidelines, the latter including agriculture and food processing sectors. These guidelines are explicitly referenced in IFC Performance Standards and often serve as practical tools for meeting AfDB ISS requirements.

Relevant standards for the SAPZ include:

- Air Emissions and Ambient Air Quality
  "Emissions from industry should not result in pollutant concentrations that exceed ambient air quality guidelines" (EHS General Guidelines, Table 1.1.1, WHO limits cited).
- Wastewater and Water Quality
  Discharges should meet "national or internationally recognized standards, whichever is more stringent" (EHS General Guidelines, Table 1.3.1).
- Occupational Health and Safety (OHS)
  Guidance covers physical, chemical, biological, and ergonomic hazards typical in food processing and agro-logistics facilities.
- Community Health and Safety
  Recommendations include road safety management plans for transport corridors and emergency response systems for chemical exposure and industrial fires.

- Industry Sector Guidelines
    - *EHS Guidelines for Perishable Food Manufacturing* (2007) provide sector-specific good practices for rice milling and post-harvest handling.
    - *EHS Guidelines for Annual Crop Production* (2007) offer best practices for fertilizer, pesticide storage, irrigation water quality, and integrated pest management.

2.3.2.2 World Health Organization (WHO) Environmental Health Guidelines

WHO guidelines are a globally recognized source of public health standards, particularly important for community health around agro-industrial hubs. Relevant references include:

- **WHO Global Air Quality Guidelines** (2021)
  Sets updated limits for PM2.5, NO_2, O_3, and other key pollutants. *Example: "Annual mean PM2.5 concentrations should not exceed 5 µg/m³."*
- **WHO Guidelines for Drinking-Water Quality** (4th edition, 2017)
  Provide maximum allowable concentrations for microbial and chemical contaminants.
- **Health and Safety in Agriculture** (WHO/ILO, 1999)
  Provides occupational health guidance for agrochemical exposure, heat stress, and repetitive labor hazards in rural settings.
- **Vector-Borne Disease Control in Humanitarian Emergencies** (WHO, 2005)
  Relevant in irrigation zones where malaria and other vector-borne diseases may be prevalent.

2.3.2.3 Codex Alimentarius Commission (FAO/WHO)

The Codex Alimentarius provides internationally accepted food safety standards and guidelines, particularly relevant to rice processing and storage. The following apply:

- General Principles of Food Hygiene (CXC 1-1969, last revised 2020): "Food should not be exposed to contamination through processing, packaging, storage, or handling."
- Code of Practice for the Prevention and Reduction of Mycotoxin Contamination in Cereals (CXC 51-2003):
  Addresses the control of aflatoxins and fumonisins in stored grains.
- Maximum Residue Limits (MRLs) for Pesticides:
  Established for common agrochemicals used in rice cultivation, with enforcement implications for residue monitoring.

2.3.2.4 Stockholm Convention on Persistent Organic Pollutants (2001, as amended)

The SAPZ project aligns with Sierra Leone's obligations under the **Stockholm Convention**, which regulates the use of hazardous agrochemicals such as certain persistent pesticides and industrial chemicals. This includes:

- Bans or restrictions on aldrin, dieldrin, endrin, heptachlor, and similar substances.
- Safe disposal and destruction of obsolete pesticide stockpiles.

2.4 INSTITUTIONAL FRAMEWORK

2.4.1 Ministry of Agriculture & Food Security

MAFS is the lead sectoral ministry for agricultural development and will serve as the principal implementing agency for the SAPZ Project. Its mandate covers the formulation and execution of policies and strategies to improve food security, increase agricultural productivity, and promote agribusiness development. MAFS will oversee project coordination, ensure alignment with national agricultural priorities and technical backstop through its National Development Partners Program Coordination Office (NDPPCO).

The Ministry is Executing Agency for this project and will execute the project through a Project Implementation Unit (PIU). The Ministry has the overall responsibility on behalf of the government of Sierra Leone to ensure that the project is implemented as agreed with the AfDB and following the Bank policies and procedures including the Bank's Integrated Safeguard Systems.

2.4.2 Ministry of Environment

The Sierra Leone Ministry of Environment and Climate Change (MOECC) is responsible for overarching environmental policy, climate change mitigation and adaptation planning, and coordination of ecosystem protection strategies. It plays a central role in integrating environmental sustainability and climate resilience across all sectors, including agriculture and infrastructure, and will provide strategic policy guidance to ensure that SAPZ aligns with Sierra Leone's environmental commitments and climate change adaptation frameworks. The Ministry supervises several institutions responsible for implementing this overarching mandate.

2.4.2.1 The Environment Protection Agency

The EPA is the statutory body responsible for environmental regulation, including environmental impact assessments (EIAs), licensing, compliance monitoring, and enforcement of environmental standards. Under the Environmental Protection Agency Act (2008), the EPA will review and approve the ESIA for the SAPZ Project, monitor its environmental performance, and ensure compliance with national environmental laws and AfDB safeguards.

2.4.2.2 The National Protected Area Authority

The NPAA oversees the management and protection of Sierra Leone's national parks, game reserves, and other protected areas. Although the SAPZ Project is not expected to be located within protected areas, the NPAA must be consulted if project activities may impact adjacent ecosystems or biodiversity corridors such as mangroves. The Authority also contributes to conservation planning and the application of relevant international conventions such as the Convention on Biological Diversity (CBD).

2.4.2.3 Sierra Leone Meteorological Agency (SLMet)

SLMet will provide meteorological and climate-related data essential for agricultural planning, water resource management, and disaster risk reduction. Its input will be key in supporting climate-resilient infrastructure design, early warning systems, and agro-ecological assessments within the SAPZ Project area.

2.4.3 Ministry of Planning and Economic Development (MoPED)

MoPED is responsible for sustainable growth and development through planning, monitoring and resource mobilization for comprehensive and equitable national development. It now also serves as the lead government agency for oversight of resettlement planning and implementation, ensuring alignment with national development objectives and social safeguards. It should be noted that

MoPED's resettlement oversight function is still evolving and requires technical capacity in land acquisition laws, livelihood restoration, and social risk mitigation.

2.4.4 Ministry of Land Housing and Country Planning

MLHCP manages land administration, including land use planning, surveying, registration, and allocation. Given the land donation and infrastructure development components of the SAPZ Project, the Ministry will play a critical role in land mapping, due diligence, and ensuring that land-related processes comply with national laws and respect customary tenure systems. It will also guide spatial planning and zoning within the Agro-Industrial Zone.

2.4.5 Ministry of Local Government and Community Affairs (MLGCA)

MLGCA oversees decentralization and local governance structures. It plays a vital role in coordinating with district councils and chiefdom administrations, particularly for community engagement, land use coordination, and conflict resolution. Its involvement ensures that the SAPZ Project is locally embedded, socially inclusive, and responsive to the needs of affected communities.

2.4.6 National Water Resource Management Agency

The National Water Resources Management Agency (NWRMA) in Sierra Leone is mandated to ensure sustainable and gender-sensitive water resources management, including regulating, utilizing, protecting, developing, conserving, and controlling water resources throughout the country. They also grant water abstractions licenses for large scale industrial usage.

3 PROJECT DESCRIPTION

3.1 PROJECT DESCRIPTION

The development objective of the proposed project is to contribute to increasing productivity, decreasing imports and creating jobs along the rice value chain in Sierra Leone. This will be achieved through enhancing the enabling environment to support the development of a private sector-led, Government-enabled modern rice sector through strengthening climate-resilient production and productivity, modern processing, and the marketing of 'import grade' milled rice to national production per annum towards domestic rice self-sufficiency

Rice self-sufficiency in Sierra Leone is challenged by a dependency on rain-fed agriculture, poor agriculture practices, extreme vulnerability to climate change, unsustainable water management, lack of access to finance, and limited private sector investment. The project seeks to address these challenges by strengthening climate-resilient rice productivity and production systems, developing a sustainable agro-industrial hub, agricultural transformation centres and aggregation centres (ATC), and supporting market development. The proposed project integrates resilience-building strategies to address fragilities faced by vulnerable groups, particularly smallholder farmers, women, and youth in agribusiness. These outputs will contribute to increasing rice productivity, crowding in private sector investment in rice processing and related activities, which will result in a greater availability of high quality locally milled rice. The availability of higher quality rice coupled with improved packaging and marketing will lead to an increase in the demand for local rice and a corresponding decrease in imports. An increase in job creation is also expected from the different interventions. This approach not only enhances economic opportunities but also fosters resilience against environmental and market fluctuations. The underlying assumptions for the success of the project include macro-economic stability, mitigation (and adaptation) measures of impacts of extreme climate events, policies and incentives to underpin private-sector participation, and attractive financial products for private investment in agribusiness. This holistic approach not only strengthens food security but also drives economic diversification and resilience in Sierra Leone's agricultural sector, aligning with national goals for sustainable rural development and poverty reduction.

In Port Loko District the Project will support approximately 2,000 farmers in the development of a 10,000 hectares of climate resistant rice production and productions systems and an agricultural transformation centre and aggregation centre (ATC in support of a rice agricultural industrial hub to be constructed in Robanna, Mambolo Chiefdom, Kambia District. Rice productivity will be improved by providing farmers with certified seeds with the following properties: climate resilient; high yield; tolerance to soil salinity and floods; and adapted to the target ecologies i.e. boli land, IVS and swamps. Support will be provided to link farmers with agro dealers for fertilizer and mechanization services for land preparation in collaboration with the private sector.

The ATC[4] in Kathoma will provide facilities storage, aggregation and primary processing of rice paddy for transportation to the industrial hub in Kambia District where 'modern' processing and milling of

[4] The ATCs are designed to link smallholder farmers to the agro-industrial hub and are centres strategically located in high production areas, with the aim of serving as aggregation points to accumulate products from the community to supply the agro-industrial hub for further value addition, or to send them to centres of great demand for distribution and retail to consumers. The ATC is a rural based development institution to implement integrated initiatives for the rural communities and at selected locations for facilitating agro commodities procurement.

rice will take place to produce a product comparable to imported rice. The project will work with farmers and communities to develop their own land. The ATC is to be located on 35 hectares of land in Kathoma Village owned by the Ministry of Agriculture and Food Security.

ATC will contain facilities for storage and primary processing of rice paddy followed by aggregation and transportation of the rice harvest to the Agro-industrial hub in Mambolo, Kambia. As required by the project, spot improvements will be made to farms tracks to facilitate movement of produce and materials to and from farms to the aggregation centre to the main roads and ultimately to the industrial hub. The project will also facilitate the existing riverine transport links in Port Loko District by rehabilitating and in some cases constructing berthing facilities (wharfs) ito facilitate river transportation of produce and materials to and from farms and processing facilities.

3.2 PROJECT COMPONENTS AND MAIN ACTIVITIES

3.2.1 Component 1: Enhancement of Agricultural Productivity and Production Systems

This component focuses on improving the competitiveness and profitability of rice farming in Sierra Leone by enhancing field-level productivity, post-harvest management, and the quality of milled rice in Kambia and Port Loko Districts.

Main Activities:

- Promotion of High-Yielding Varieties:
    - Introduction of climate-resilient rice varieties tolerant to salinity and floods, suitable for mangrove, Boli, and inland valley ecosystems.
    - Collaboration with AfricaRice/TAAT Rice Compact and SLARi for seed development and certification.
- Strengthening Seed Systems:
    - Support for the production of early-generation seeds (breeder and foundation seeds).
    - Facilitation of private sector involvement in certified seed multiplication and distribution.
- Provision of Agricultural Inputs:
    - Support for farmers in acquiring certified seeds, customized fertilizer blends, and other inputs.
    - Establishment of linkages with fertilizer companies for timely input supply.
- Mechanization and Land Development:
    - Promotion of land preparation, planting, and harvesting mechanization services.
    - Partnership with private sector service providers for machinery services.
- Irrigation Development:
    - Construction and rehabilitation of irrigation schemes to support year-round production.
    - Introduction of innovative water management technologies.
- Training and Capacity Building:
    - Training of farmers, aggregators, and millers on good agricultural practices (GAP), harvesting techniques, and post-harvest management.
    - Promotion of improved storage, drying, and threshing technologies to reduce losses.
- Support for Modern Processing Facilities:
    - Provision of support to acquire modern rice processing machinery (e.g., mills, cleaners, graders, packaging equipment).

3.2.2 Component 2: Development of the Agro-Industrial Hub and Agricultural Transformation Centres

This component aims to establish the enabling physical and institutional infrastructure to support large-scale agro-processing and market development.

Main Activities:

- Agro-Industrial Hub (AIH) Development:
  - Construction of essential infrastructure, including internal roads, water supply systems, waste management systems, energy supply (grid extension and solar energy options), and ICT connectivity.
  - Construction of office buildings, training centres, laboratories for quality certification, and administrative facilities.
  - Parcelling and servicing of plots for private sector agro-processing investors.
- Agricultural Transformation Centres (ATCs) and Aggregation Centres (ACs):
  - Establishment of ATCs at strategic locations to facilitate farmer aggregation, input distribution, and primary handling of produce.
  - Development of ACs to support aggregation, storage, cleaning, and transportation logistics.
- Transport Infrastructure:
  - Rehabilitation of farm tracks to connect production clusters to ATCs and the AIH.
  - Development of water transportation facilities in riverine areas.
- Zone Management and Private Sector Engagement:
  - Adoption of SEZ-compliant policies for management and operation of AIH and ATCs.
  - Recruitment of facility managers through competitive processes.
  - Design of attractive incentives and financing mechanisms to attract private investors.

3.2.3 Component 3: Market Development and Capacity Building

This component aims to link production to markets through strategic interventions that build capacity, improve competitiveness, and promote market-oriented rice value chain development.

Main Activities:

- Market Linkages:
  - Facilitation of partnerships between farmer organizations, aggregators, processors, and off-takers.
  - Development and dissemination of market information systems.
- Branding and Consumer Awareness:
  - Support for the packaging, branding, and marketing of locally milled rice.
  - Consumer advocacy campaigns to promote local rice as a substitute for imports.
- Quality Standards and Certification:
  - Development of national standards for milled rice quality.
  - Training of farmers, processors, and millers on food safety and quality assurance practices.
- Capacity Building for Farmers and SMEs:
  - Skills development programs focused on production, post-harvest handling, processing, and entrepreneurship.
  - Tailored support programs for women and youth entrepreneurs.
- Institutional Strengthening:

- Strengthening of the Ministry of Agriculture's extension services and engineering units.
- Capacity building for policy makers and regulatory agencies to support SAPZ development.

3.2.4 Component 4: Project Management and Monitoring and Evaluation

This component ensures that the project is implemented effectively, efficiently, and with strong accountability.

Main Activities:

- Establishment of Project Implementation Unit (PIU):
  - Recruitment of key staff including a Project Manager, Financial Manager, Procurement Expert, M&E Officer, Environmental Safeguards Specialist, Social Safeguards Specialist and technical experts.
  - Set-up of operational offices with necessary facilities and equipment.
- Procurement and Financial Management:
  - Implementation of procurement activities following AfDB's procurement policies.
  - Adoption of financial management systems in line with international best practices.
- Monitoring, Evaluation, and Reporting:
  - Development and implementation of a robust M&E framework.
  - Regular tracking of project performance indicators and impact assessments.
  - Preparation of quarterly progress reports, mid-term reviews, and final project completion reports.
- Stakeholder Engagement and Knowledge Sharing:
  - Organization of workshops and consultations with stakeholders throughout the project lifecycle.
  - Documentation and dissemination of lessons learned to inform future interventions.

3.3 PROJECT LOCATION

The Project will be implemented in Kambia and Port Loko Districts. The selection of these districts is justified by the availability of over 136,000 hectares of arable lands for the cultivation of rice in boli land, mangroves and inland valley ecological systems. The direct beneficiaries are the economically active smallholders farmers and SME's living in the rural areas in the two districts who are already willing to participate in agricultural activities as a business. The number of direct beneficiaries is estimated at 6,000 farmers with farm size ratio of 1:5ha in all the selected targeted locations and improve the lives of 150,000 indirect beneficiaries**.** Among the target groups, women and youth play a major role in rice production, processing, small enterprises operation and marketing. Women constitute more than 50% of the active agriculture value chain actors in Sierra Leone, and they will be specifically targeted by project activities and assured equal access to all production support and services.

The main Hub of the Zone, where modern rice milling will take place will be located in Robanna Village, Mambolo Chiefdom, Kambia District, as it has reasonable access to external infrastructure andaccessibility to major urban markets, and its historical reputation for the growth of SME's some of which may also be able to provide various needed services within the Zone.

In Port Loko district the Ministry of Agriculture and Food Security (MAFS) will implement the project in the Loko Massama and Bureh Chiefdoms that border the Kambia District and the Chiefdom of Mambolo, the proposed site of the rice agro-industrial hub (AIH). A total of 10,000 hectares of

farmland cultivated by small holder farmers and SMEs will be targeted for rice production. An agricultural transformation centre (ATC) will also be constructed in Port Loko District. The location of the facility will be the Ministry of Agriculture facilities in Kathoma, a former agricultural training station. It was chosen based on its central location between Loko Massama and Bureh Chiefdoms and transport links to the participating farms and the Agricultural Hub in Mambolo, Kambia District.

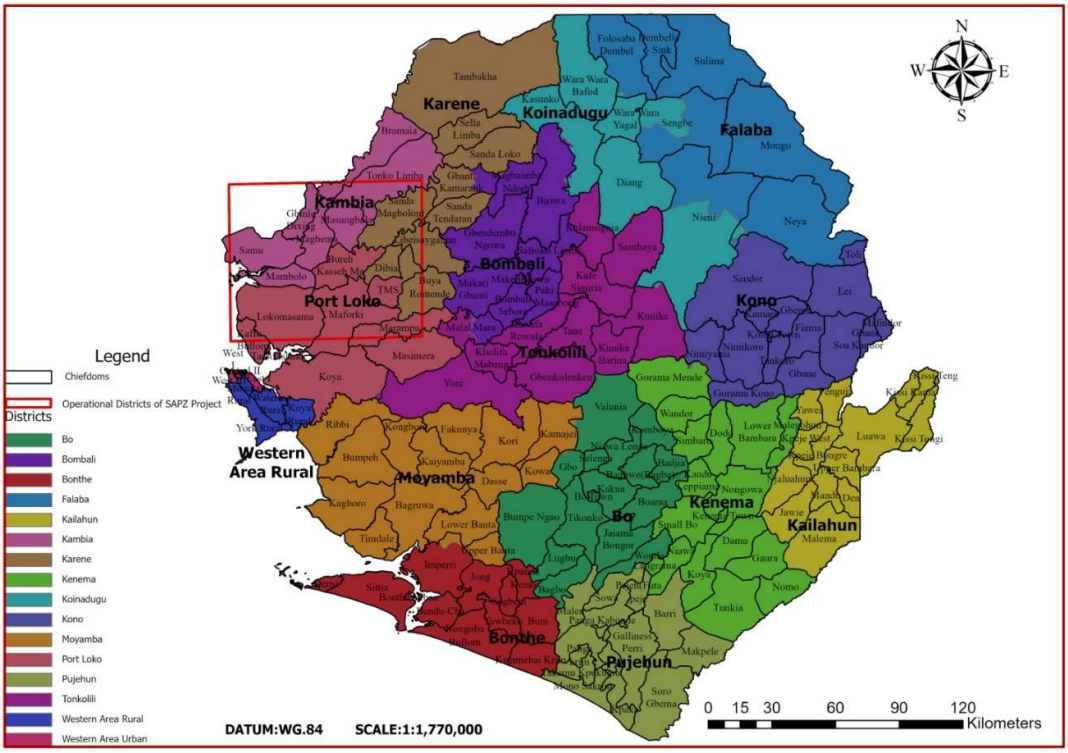


Figure 1: Map of Sierra Leone showing operational Districts of SAPZ Project

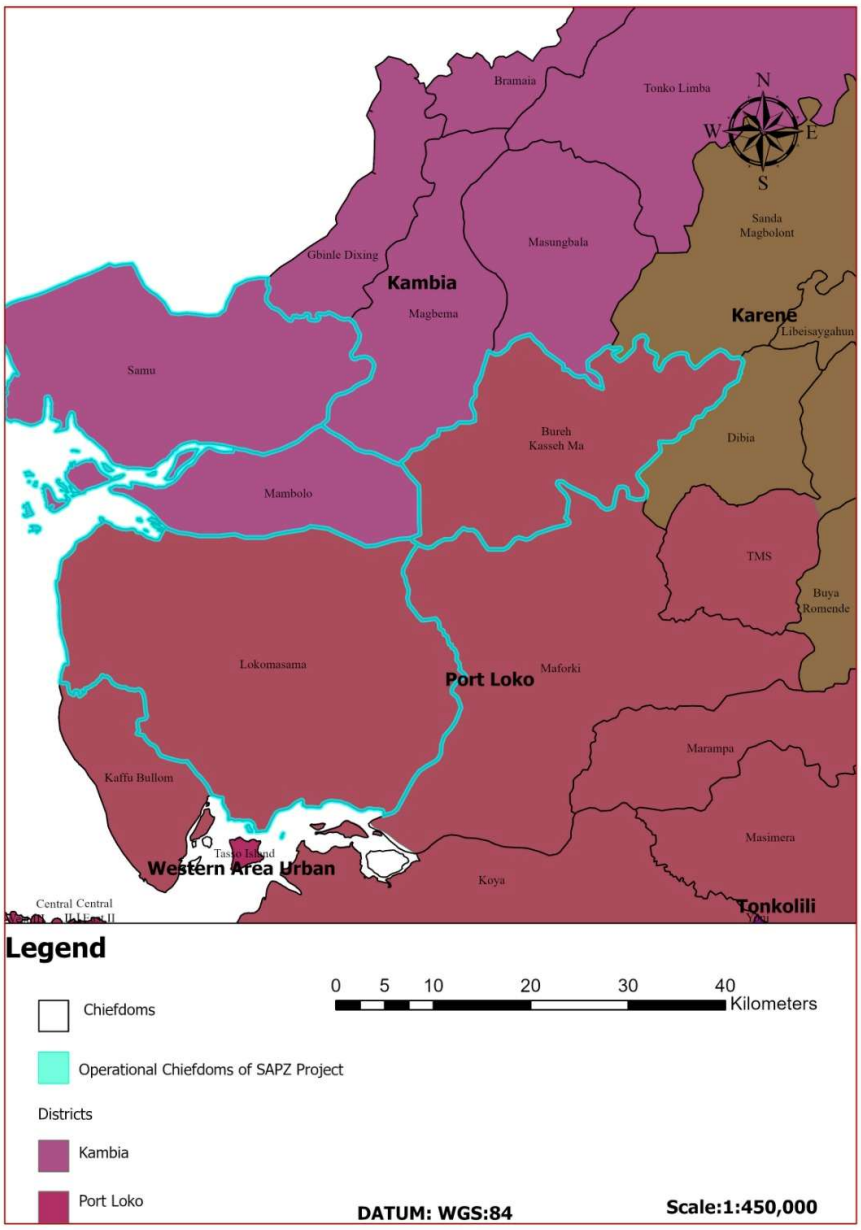


Figure 2: : Project Chiefdoms- Loko Massama & Bureh (Port Loko District); Mambolo & Samu (Kambia District)

Four sites namely Kathoma Community, Kamasondo Chiefdom; Mankara, Mange and Rothum in the Bureh Chiefdoms; Port Loko District were assessed for the ESIA Study. These are Boli and Inland Valley Swamp (IVS), with an estimated total land size of about 3,000 Ha. These areas are mostly flat lands currently used for agriculture/farming. However, there will be a need for land development and preparation to bring the fields up the standard required for intensive modern rice farming. Field assessments confirmed that there are no schools, residential dwellings, or sacred sites located in or immediately adjacent to the identified farmland areas. However, several nearby streams were observed in proximity to the project sites. These water bodies may be at risk of contamination from the improper or late application of fertilizers, pesticides, and other agrochemicals. Mitigation

measures, including buffer zones and best practices for agrochemical handling, will be incorporated into project implementation to minimize potential environmental impacts.

Figure 1: Proposed Sites at Kathoma, Mankara & Rotham in the Port Loko District

Figure 4: Kathoma

Figure 3: Mankara rice field

Figure 5: Rotham rice field

Figure 6: Kathoma ATC Location

3.4 PROJECT PHASING

The activities covered by this ESIA can be separated into four phases:

- Preconstruction
    - Identifying appropriate farmland
    - Design of ATC & AC
- Construction
    - ATC & AC Construction
    - Land Development and Preparation
    - Rehabilitation of feeder roads
- Operations and Maintenance
    - Farming operations i.e. planting, harvesting, etc
    - Use of agrochemical i.e. pesticides, herbicides, fertilizers
    - Transportation
- Demolition & Restoration
    - Demolition of ATC and restoration of natural environment

3.4.1 Preliminary Phase

During this phase the PIU will focus on identifying appropriate farms and farmland for participation in the SAPZ project. This land would have to be identified based on criteria developed by the MAFS in collaboration with the Bank. It is expected that the criteria will revolve around identifying a suitable large cluster of appropriate rice producing land to justify the investments required to create commercially viable clusters. This will proceed concurrently with a robust stakeholder engagement process that identifies farmers, ascertains their interest in participating in the project and registering them. Sites will also require environmental and social due diligence to exclude lands with significant environmental and or social impacts such as protected areas, etc. The design of the ATC and AC will also be finalised during this phase of the project.

3.4.2 Construction Phase

3.4.2.1 Land Development

This focuses on improving agricultural land to increase rice productivity and optimize the use of available arable areas. Key activities will include land levelling, land enhancement, and the rehabilitation of existing production infrastructure to create more uniform and productive fields. Effective water management strategies, including the development and upgrading of irrigation systems, will be implemented in selected rice clusters where suitable.

In addition, the project will support the promotion and adoption of high-yielding, climate-resilient rice seed varieties tailored to specific ecologies such as boli lands, inland valley swamps (IVS), and mangrove swamps. This approach aims to equip farmers with the genetic resources needed to adapt to environmental stress while achieving higher and more stable yields.

3.4.2.2 Land Preparation

Land preparation serves as a fundamental step in rice cultivation, ensuring that the soil is suitably conditioned for optimal crop growth. This phase encompasses a series of essential practices, including ploughing, harrowing, and puddling, which collectively help to break up soil clumps, improve soil structure, and create a level seedbed. These preparatory activities enhance water retention, reduce weed pressure, and facilitate even germination and seedling development, ultimately laying the foundation for a successful rice crop.

3.4.2.3 Farm Track Rehabilitation for Value Chain Efficiency

As part of the SAPZ Project's infrastructure development strategy, a dedicated component will focus on the rehabilitation of farm tracks linking rice production clusters to Aggregation Centres and, ultimately, to the central Agro-Industrial Hub. These rural tracks are critical for ensuring the smooth, timely, and cost-effective transport of harvested paddy rice from farms, especially those located in remote or flood-prone areas. Improved transportation infrastructure will help reduce post-harvest losses, increase farmer profitability, and ensure consistent supply to processing facilities. The farm tracks will also facilitate the movement of agricultural inputs to farms and contribute to broader rural connectivity and market integration.

3.4.2.4 Construction of Agricultural Transformation Centres (ATCs)

The SAPZ Project will establish Agricultural Transformation Centres (ATCs) as key rural infrastructure nodes that provide integrated services to farmers and local agribusinesses. These centres will serve as decentralized hubs for input distribution, technical training, primary processing, aggregation, and quality control. The construction of ATCs will include physical infrastructure such as storage facilities, drying floors, mini-mills, packaging units, and administrative buildings. ATCs will also facilitate access to extension services, finance, and mechanization support, improving farm-level productivity and post-harvest handling. Strategically located in production clusters, ATCs are designed to strengthen the rice value chain and serve as feeder nodes to the central Agro-Industrial Hub.

3.4.2.5 Construction of Aggregation Centres

To complement the ATCs, the project will support the construction of Aggregation Centres in remote production areas to streamline the collection, grading, and bulk transport of harvested rice. These centres will include basic infrastructure such as shaded loading bays, weighbridges, drying platforms, and secure storage facilities. By consolidating produce from smallholder farmers, aggregation centres will improve economies of scale, reduce transportation costs, and facilitate more efficient linkage with processing facilities. They will also serve as important platforms for farmer organizations and cooperatives to coordinate logistics and participate more effectively in structured markets.

3.4.3 Operations and Maintenance

3.4.3.1 Rice Cultivation: Seed Selection, Sowing, and Harvesting

During the operational phase, the project will support sustainable rice production practices through the promotion of certified, climate-resilient seed varieties suited to distinct agro-ecological zones. Seed selection will prioritize varieties that resist pests, disease, and climate stresses. Sowing practices will include both direct seeding and transplanting, with emphasis on spacing and timing to optimize yield. Harvesting will be synchronized and supported through farmer training and access to mechanized harvesters to reduce losses and labour requirements.

3.4.3.2 Agrochemical Usage – Pesticides and Fertilizers

To sustain productivity, the project will promote the responsible and regulated use of agrochemicals. This includes training farmers on safe handling, storage, and application of pesticides and fertilizers. Integrated pest management (IPM) will be encouraged to minimize environmental and health risks, while fertilizer application will be aligned with soil testing results to improve efficiency and reduce runoff. The project will also ensure compliance with national agrochemical regulations and AfDB environmental safeguards.

3.4.3.3 Small-Scale Irrigation of Non-Swamp Land

In areas not covered by natural swamps, small-scale irrigation systems such as treadle pumps, tube wells, and solar-powered pumps may be deployed to support dry-season or supplementary irrigation. These technologies will enhance cropping intensity, ensure water-use efficiency, and improve resilience against seasonal droughts. Water user associations will be engaged to manage shared systems and maintain infrastructure.

3.4.3.4 Operation of ATC and Aggregation Centre

Once established, the ATC and Aggregation Centre will operate as a multi-service node managed by local cooperatives or private concessionaires under public-private partnership (PPP) arrangements. Services will include input sales, mechanization hiring, post-harvest handling, and value addition. Regular maintenance of facilities such as storage warehouses, processing equipment, and access roads will be scheduled to ensure long-term functionality. Capacity building will be provided for staff and operators to ensure efficient and transparent operations.

3.4.3.5 Transportation of Produce from Farms to ACs and to the Agro-Industrial Hub

Transport logistics will be coordinated through organized farmer groups and cooperatives, supported by a fleet of light and medium-duty trucks or hired transport providers. Produce will be transported from farms to Aggregation Centres and once bulked, onward to the Agro-Industrial Hub for processing. To maintain quality and reduce losses, loading and unloading areas will be covered, and transport routes will be optimized using GPS-based planning tools. Partnerships with local transport associations will be encouraged to promote job creation and reduce costs.

3.4.3.6 Mechanisation

The SAPZ Project is committed to modernizing rice cultivation by connecting farmers to the private sector to provide mechanized solutions that improve efficiency, reduce labour dependency, and enhance productivity across the entire rice value chain. Mechanization is an essential component of the project strategy, aimed at transforming traditional farming practices through the deployment of appropriate technologies.

Overview of commonly used equipment for rice production:

Tractors: Tractors will be used for primary land preparation activities such as ploughing, harrowing, and levelling. Their use ensures timely and uniform seedbed preparation essential for rice planting.

Power Tillers: Also known as walking tractors, power tillers are suitable for smallholder rice farmers. They are used for ploughing, puddling, and weeding, and offer excellent manoeuvrability in tight or uneven terrain.

Combine Harvesters: These machines perform harvesting, threshing, and winnowing in a single operation. They significantly reduce harvest time and labour requirements while minimizing post-harvest losses.

Seeders and Transplanters: These machines ensure precise seed spacing and depth during sowing and transplanting, improving crop establishment and optimizing yields.

Sprayers: Sprayers support efficient application of fertilizers, pesticides, and herbicides. They help ensure targeted coverage, reduce chemical use, and mitigate environmental impact.

3.4.4 Decommissioning and Restoration Phase

3.4.4.1 Demolition of Agricultural Transformation Centre (ATC)

At the end of their operational lifespan, or in the event of project closure, the Agricultural Transformation Centre (ATC) will undergo a systematic decommissioning process. This phase will involve the safe demolition of physical structures such as storage warehouses, drying floors, administrative buildings, and associated infrastructure. All demolition activities will be conducted in accordance with national environmental standards and AfDB decommissioning guidelines to minimize dust, noise, and waste impacts on surrounding communities and ecosystems. Recyclable materials will be salvaged where feasible, and non-hazardous waste will be disposed of at approved waste management facilities.

3.4.4.2 Restoration of land to Natural Vegetation

Following demolition, the project will implement a land restoration plan aimed at returning the affected areas to their original agricultural or natural ecological state. This will involve the removal of construction debris, landscaping, and enrichment of topsoil where necessary to support vegetation growth. Native plant species will be prioritized for replanting to promote biodiversity, soil stabilization, and habitat restoration. Where farmland is to be restored for agricultural use, soil quality assessments will guide necessary amendments to facilitate future cultivation. Monitoring protocols will be established to ensure successful vegetation establishment and ecosystem recovery over time.

See Annex 3: Waste Generation and Management for details on waste management.

4 SOCIAL BASELINE

4.1 SOCIO-ECONOMIC BASELINE FOR PORT LOKO DISTRICT

4.1.1 Population and Demographics

Port Loko District is home to a population of approximately 615,376 individuals, according to the 2015 Population and Housing Census. The district exhibits a relatively balanced gender distribution, although there are slightly more females than males, with a sex ratio of about 96 males for every 100 females. The population structure is characteristically youthful, with around 41% of the residents under the age of 15. This demographic profile indicates a high dependency ratio, emphasizing the need for investments in education, health, and employment generation to harness the district's demographic dividend.

4.1.2 Education

Educational attainment in Port Loko District remains low, particularly in rural areas. Literacy rates are significantly below national averages, with disparities between genders and between urban and rural communities. School attendance has gradually improved over recent years; however, retention rates, especially for girls, are still a major concern. Common barriers to education include household poverty, long distances to schools, inadequate infrastructure, and sociocultural factors such as early marriage.

4.1.2.1 Literacy Rates

In 2015, Port Loko District had a literacy[5] rate of 41.5%, which is below the national average of 48.1%. This indicates that a significant portion of the district's population lacks basic reading and writing skills, posing challenges for socio-economic development.

4.1.2.2 Gender Disparities

There is a significant gender gap in education within the district. Girls are less likely to be enrolled in school and more likely to drop out early compared to boys. This disparity is influenced by socio-cultural norms, economic constraints, and early marriage practices. 27.5% of men (15-49yrs) in the district compared to 53.6% of women have no education (SLDHS 2019). In terms of literacy 66% of men in the district are considered literate compared to 33% of women (SLDHS 2019).

4.1.2.3 Educational Infrastructure

The district suffers from inadequate educational infrastructure. Many schools lack basic facilities such as classrooms, furniture, and sanitation facilities. This inadequacy hampers effective teaching and learning processes.

4.1.3 Health and Access to Services

The health profile of Port Loko District reflects broader national challenges, with high maternal and child mortality rates. Malaria remains the leading cause of morbidity, alongside respiratory infections and diarrheal diseases. Access to healthcare services is limited, with many residents traveling over five kilometres to reach the nearest health facility. Health insurance coverage is minimal, estimated at around 2-3%, which further constrains access to quality healthcare. Efforts to

[5] Refers to people who attended schooling higher than the secondary level and who can read a whole sentence or part of a sentence

improve health outcomes are ongoing but require substantial investment in infrastructure, staffing, and health education.

4.1.3.1 Maternal Health

- **Maternal Mortality Ratio (MMR):** Sierra Leone's national MMR stands at **717 deaths per 100,000 live births**, one of the highest globally. While district-specific MMRs aren't detailed in the SLDHS 2019, Port Loko's maternal health indicators suggest significant challenges according to UNFPA Sierra Leone.
- **Skilled Birth Attendance:** In Port Loko, **61%** of births occur in health facilities, which is below the national average of **83%**.
- **Caesarean Section Rate:** The national caesarean section rate is **2.9%**, indicating limited access to emergency obstetric care.

4.1.3.2 Child Health

- **Under-Five Mortality Rate:** Nationally, the under-five mortality rate is **122 deaths per 1,000 live births**. While specific data for Port Loko isn't provided, the district's health challenges suggest rates may be comparable or higher.
- **Immunization Coverage:** The national coverage for all basic vaccinations among children aged 12–23 months is **68%**.

4.1.3.3 Nutrition

- **Stunting:** Nationally, **30%** of children under five are stunted, indicating chronic malnutrition.
- **Wasting:** The prevalence of wasting among children under five is **5%**, reflecting acute malnutrition.
- **Underweight:** Approximately **12%** of children under five are underweight.

While these are national figures, Port Loko's nutritional indicators are presumed to align closely.

4.1.3.4 Disease Prevalence

- **Malaria:** Malaria remains a leading cause of morbidity and mortality. In children under five, the prevalence of malaria is **52%** nationally.
- **HIV/AIDS:** The national HIV prevalence is **1.7%** among adults aged 15–49.

4.1.3.5 Healthcare Access and Infrastructure

- **Health Facilities:** Port Loko has a network of health facilities, including hospitals, community health centres, and posts. However, accessibility remains a challenge, especially in remote areas.
- **Water and Sanitation:** Only **63%** of households have access to improved drinking water sources, and **16%** have access to improved sanitation facilities.

4.1.4 Livelihoods and Employment

Agriculture is the cornerstone of livelihoods in Port Loko District, engaging more than 70% of households. The primary agricultural activity is rice farming, supplemented by the cultivation of cassava, groundnuts, and vegetables. In coastal chiefdoms, fishing constitutes a vital livelihood source. The employment landscape is dominated by informal sector activities, with seasonal labour migration common during agricultural off-seasons. Limited opportunities for formal employment contribute to high underemployment and vulnerability among youth and women.

4.1.5 Agriculture

Port Loko District is recognized as a key rice-producing area in Sierra Leone. Farming practices include both swamp (boli) and upland systems, although yields are often low due to reliance on

traditional farming methods, limited access to mechanization, and low adoption of improved seed varieties. Land tenure is predominantly governed by customary systems, where communal ownership and traditional authority over land rights are prevalent. These arrangements often pose challenges for land investments and agricultural modernization. According to the 2015 Census 74% of households in the District are classed as Agriculture Households, the highest in the country. Nationally agriculture households make up 58% of households.

4.1.6 Infrastructure and Basic Services

Access to basic infrastructure and services in Port Loko District is generally poor. The majority of households rely on boreholes and hand-dug wells for water supply, while access to piped water systems remains minimal. Sanitation coverage is limited, with open defecation still practiced in some rural communities. Electricity access is confined to major towns and a few peri-urban areas, with most rural residents depending on generators, solar panels, or kerosene lamps. Inadequate road infrastructure further hampers access to markets, education, and health services.

4.1.7 Vulnerable Groups

Port Loko District is characterized by high levels of poverty, particularly among women, youth, and persons with disabilities. Vulnerability is exacerbated by limited access to education, health services, and employment opportunities. The district also has a significant number of orphans, largely due to the impacts of past health crises such as the Ebola epidemic. Seasonal food insecurity is a recurring challenge for many households, particularly during the lean season when food stocks are depleted.

4.1.8 Cultural and Social Structures

The district maintains strong traditional governance structures, with paramount chiefs, section chiefs, and village headmen playing key roles in community decision-making, land management, and conflict resolution. Social cohesion within communities is generally strong, supported by traditional practices and cultural values. However, gender disparities persist, particularly in relation to land ownership, political representation, and access to economic resources. Efforts to promote gender equality and social inclusion are ongoing but require sustained community engagement and policy support.

4.1.9 Gender-Based Violence (GBV) and Violence Against Women

Gender-based violence is a significant concern in Port Loko District. According to the 2018 Sierra Leone Police Annual Crime Statistics Report, the Northern Region, which includes Port Loko, recorded 1,179 cases of offenses against women and children in 2017. These offenses encompass domestic violence, sexual assault, and other forms of abuse. The prevalence of GBV is influenced by factors such as poverty, cultural norms, and limited access to support services. Efforts to address GBV include community sensitization programs, legal reforms, and the establishment of support centres for survivors.

Furthermore, according to the 2019 Demographics and Health Survey 61% of Women (15 – 49 years old) in Sierra Leone have been victims of gender-based violence in their lifetime and 43% had undergone GBV in the 12 months preceding the survey. Port Loko District has a higher level of GBV occurrence than the national average at 70.2% with 44.5% within the preceding 12 months.

4.1.10 Water and Sanitation

Water supply and sanitation conditions in Port Loko District reflect broader national challenges but also exhibit localized vulnerabilities that require targeted attention. Access to safe drinking water remains a significant concern. According to the 2019 Sierra Leone Demographic and Health Survey (SLDHS), approximately**,** 66% of households have access to an [6]improved source of drinking water (92% in urban areas and 49% in rural areas). In Port Loko, 48% have access to improved sources of drinking water while 52% use unimproved sources of drinking water such as unprotected dug wells, unprotected springs, and surface water.

Despite moderate progress in water access, water quality remains problematic. In many rural areas of Port Loko, even 'improved' water sources are subject to contamination due to poor maintenance, lack of water treatment, and proximity to agricultural activities and sanitation facilities. This contributes to a high burden of waterborne diseases such as diarrhoea, cholera, and typhoid fever, especially among children under five.

Sanitation access in Port Loko District is notably inadequate. Nationally, 55% of the population use an improved sanitation facility (84% in urban areas and 34% in rural areas), 27% have access to an unimproved facility, while eighteen percent engage open defecation. Open defecation remains prevalent, particularly in rural chiefdoms where latrine coverage is low, infrastructure investments are sparse, and cultural norms sometimes inhibit sanitation uptake. In Port Loko 52.4% households use an improved sanitation facility, 26.6% have access to unimproved sanitation facilities and 20.9% practice open defecation.

The lack of access to basic sanitation facilities has critical implications for public health, contributing to the spread of infectious diseases and impacting maternal and child health outcomes. Inadequate sanitation also disproportionately affects women and girls, compromising their dignity, privacy, and safety, particularly during menstruation.

Efforts to improve water and sanitation infrastructure, such as the construction of boreholes, hand pumps, and public latrines, have been implemented by government programs and NGOs. However, maintenance challenges, low community ownership, and lack of hygiene promotion have often limited the sustainability and impact of these interventions.

In summary, while some progress has been made in improving water supply infrastructure in Port Loko District, sanitation coverage and hygiene practices remain critically low. Strengthening community-based management of water points, expanding access to safe sanitation, and promoting behavioural change around hygiene are essential steps for improving health outcomes and achieving sustainable development in the district.

4.1.11 4Waste Management

Waste management practices in Port Loko District are largely informal. Most households dispose of solid waste either by open dumping or burning, leading to environmental degradation and health hazards. There is limited organized municipal waste collection outside of the district capital and major towns.

[6] Includes piped water, public taps, standpipes, tube wells, boreholes, protected dug wells and springs, rainwater, water delivered via a tanker truck or a cart with a small tank, and bottled water

4.2 PROJECT COMMUNITIES

In 2024, a comprehensive socio-economic baseline survey was within communities in Loko Massama and Bureh Chiefdoms of Port Loko District targeted by the proposed Project. A team of experienced researchers conducted field visits across the designated project areas and administered carefully structured questionnaires to a representative sample of 400 respondents. The survey design prioritized inclusivity and relevance, ensuring that the instrument captured key socio-economic indicators reflective of local realities. Among respondents 218 were women and 182 were men. The communities of Kathoma, Mankara, Mange and Rothum were surveyed.

4.2.1 Age of Distribution of Respondents

The age distribution of respondents within the SAPZ Project area reflects a population structure dominated by working-age adults. Among the 400 individuals surveyed, the majority (32%) fell within the 30–40-year age bracket, followed by 23.5% aged 20–30 years. Respondents aged 40–50 years comprised 22% of the sample, while 10% were between 50 and 60 years old. Individuals aged 10–20 years represented 7% of the total, and the smallest proportion of respondents—5.5%—were aged 60–70 years.

This distribution suggests a relatively youthful and economically active population, with over three-quarters of respondents under the age of 50. The limited representation of individuals above 60 may reflect typical rural demographic trends, including reduced participation in formal agricultural activities among older age groups.

Table 2: Age Distribution of Respondents in the Project Area

Age Group (Years)	Number of Respondents	Percentage (%)
10–20	28	7.0
20–30	94	23.5
30–40	128	32.0
40–50	88	22.0
50–60	40	10.0
60–70	22	5.5
Total	400	100.0

4.2.2 Marital Status

Married individuals constitute the largest segment of the dataset, totalling 178 respondents. In contrast, singles, numbering 95, represent a significant subgroup that may influence social structures and economic behaviours within this population. Although smaller in size, the 75 divorced and 52 widowed individuals provide essential insights into the complexities of marital transitions reflected in the dataset.

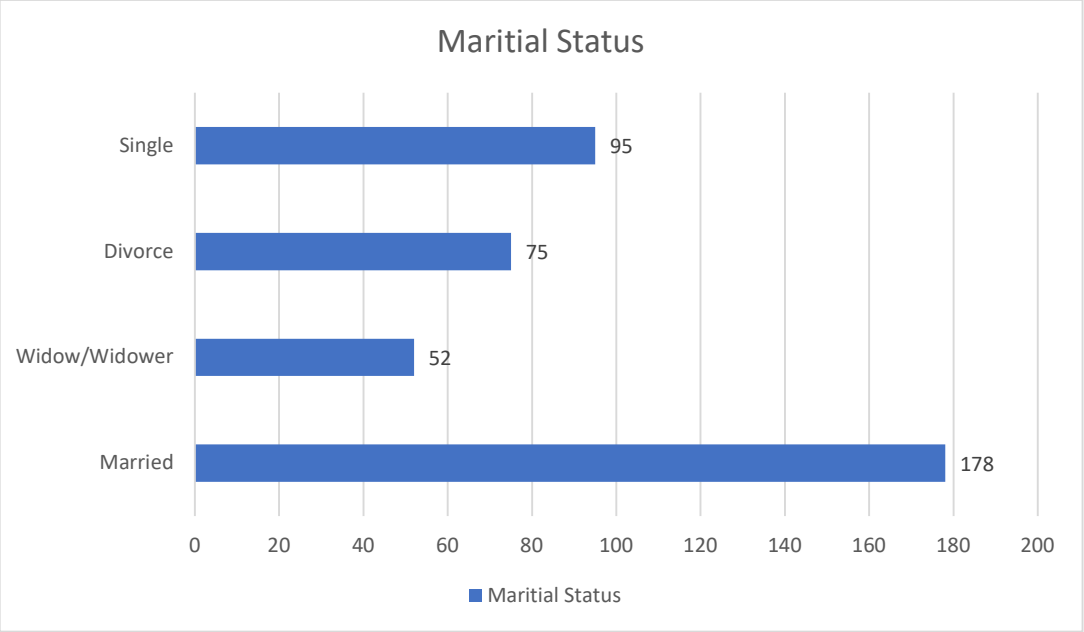
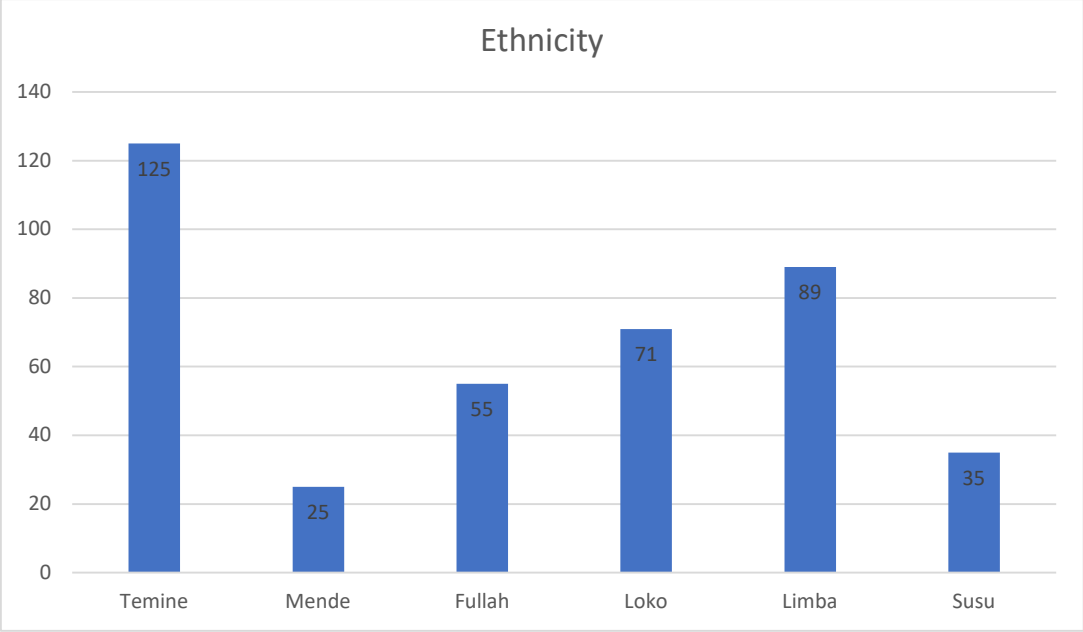


Figure 7: Marital Status of Respondents

4.2.3 Ethnic Composition

The ethnic composition of the project-affected communities in Port Loko District is characterized by notable diversity, with several groups represented across the surveyed areas. The Temne ethnic group constitutes the largest proportion of the population, accounting for 31.25% of respondents. This is followed by the Limba group at 22.25%, and the Loko group at 17.75%. Other ethnic groups present include the Fullah (13.75%), Susu (8.75%), and Mende (6.25%).

This distribution reflects the multi-ethnic nature of the project area, with a dominance of northern ethnic groups alongside minority representation from other regions. Understanding the ethnic composition is important for guiding culturally sensitive stakeholder engagement and ensuring inclusive participation during project planning and implementation.



4.2.4 Education

The educational profile of respondents within the project-affected communities in Port Loko District reflects a range of formal and non-formal educational backgrounds. Among the 400 individuals surveyed, Islamic education emerged as the most common form of educational attainment, reported by 28.25% (113 respondents). This indicates a strong presence of religious-based learning within the area.

Primary education was reported by 19.5% (78 respondents), representing the largest category within the formal education system. Senior secondary education accounted for 16.5% (66 respondents), while junior secondary education was reported by 10.5% (42 respondents). Respondents with tertiary education—comprising university or equivalent training—represented 11.25% (45 individuals).

In addition, 14% (56 respondents) reported having received vocational training. This group represents a key segment of the population with practical skills relevant to agriculture, mechanics, or trade-based livelihoods.

The data reflects moderate levels of formal educational attainment across the project area, with a notable proportion of the population having received either religious or practical training. These findings may inform the design of future engagement strategies, training initiatives, and technical support programs aligned with the local knowledge base.

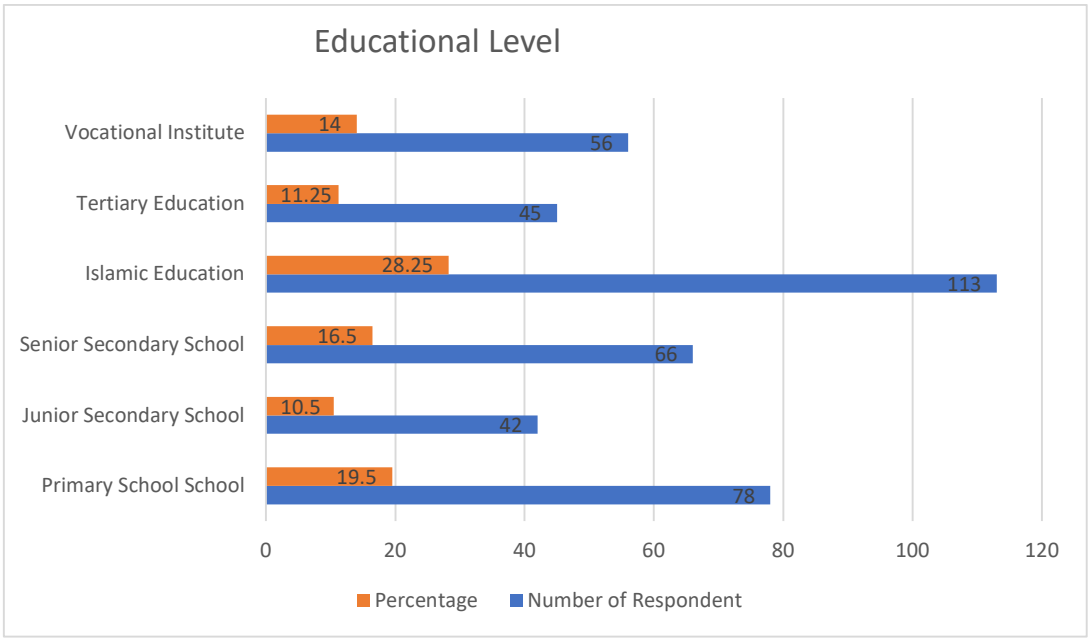


Figure 8: Education Levels

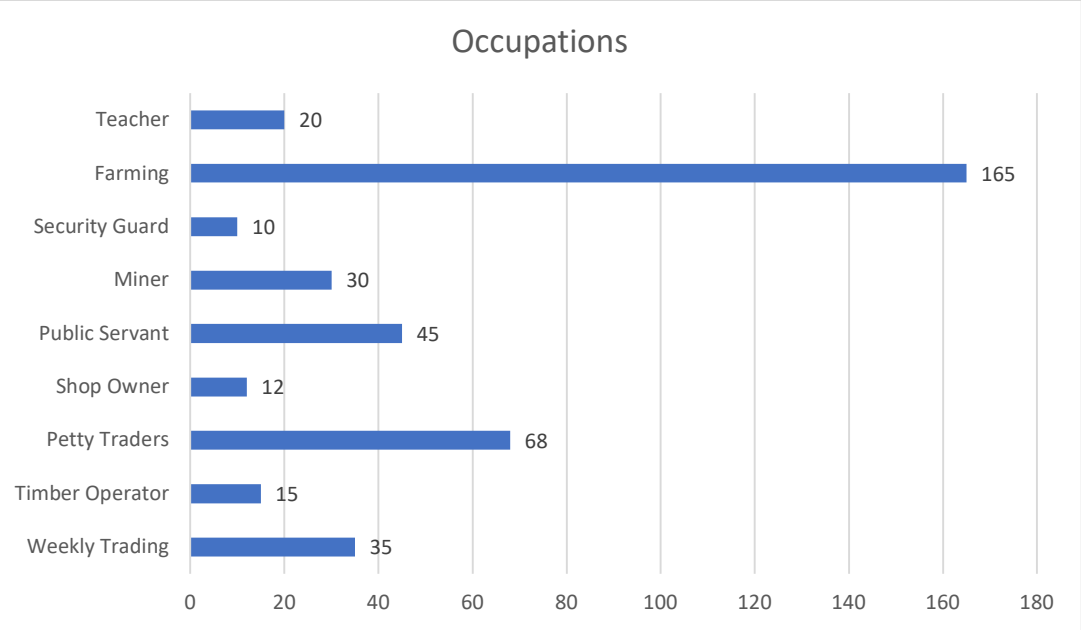
4.2.5 Occupations

The occupational distribution of respondents in the project-affected communities within Port Loko District reflects a primarily agrarian and informal economy, supplemented by public services and small-scale commercial activities. Among the 400 respondents surveyed, farming was identified as

the most common occupation, with 165 individuals (41.25%) engaged in agricultural activities. This underscores the sector's centrality to livelihoods and local food security.

Petty trading was the second most reported occupation, accounting for 68 respondents (17%), followed by public service roles such as civil servants (45 respondents or 11.25%) and teachers (20 respondents or 5%). Other notable occupations included weekly traders[7] (35 respondents or 8.75%), miners (30 respondents or 7.5%), timber operators (15 respondents or 3.75%), and security personnel (10 respondents or 2.5%). A smaller segment of the population (12 respondents or 3%) reported ownership and operation of retail shops.

This occupational spread highlights a mix of subsistence agriculture, informal commerce, and public sector employment, with limited engagement in formal private sector or industrial activities. These findings provide an important context for understanding household income sources, economic vulnerabilities, and potential areas for livelihood support under the SAPZ Project.



4.2.6 Water Sources

The communities surveyed within the SAPZ Project area in Port Loko District rely on a range of drinking water sources, reflecting differing levels of access to water infrastructure. Among the 400 respondents, the most commonly reported source was protected wells, used by 36% of households. These typically provide improved water quality with reduced risk of contamination.

Unprotected wells were reported by 32.5% of respondents, indicating a substantial reliance on sources vulnerable to environmental pollutants. Rivers accounted for 19.5% of water sources, offering readily available but seasonally variable and potentially contaminated supply. Swamp water was cited by 10% of respondents and, while naturally occurring and accessible, also carries public

[7] These are people who participate in weekly farmers markets locally called a looma. They are held in rural areas and are a system that helps farmers sell their agrarian products and buy products from other regions and the cities.

health risks if untreated. Only 2% of respondents reported access to pipe-borne water, suggesting a significant infrastructure gap in the project-affected communities.

The reliance on informal and untreated water sources highlights the need for improved access to safe drinking water as part of integrated community development and health promotion efforts under the SAPZ Project.

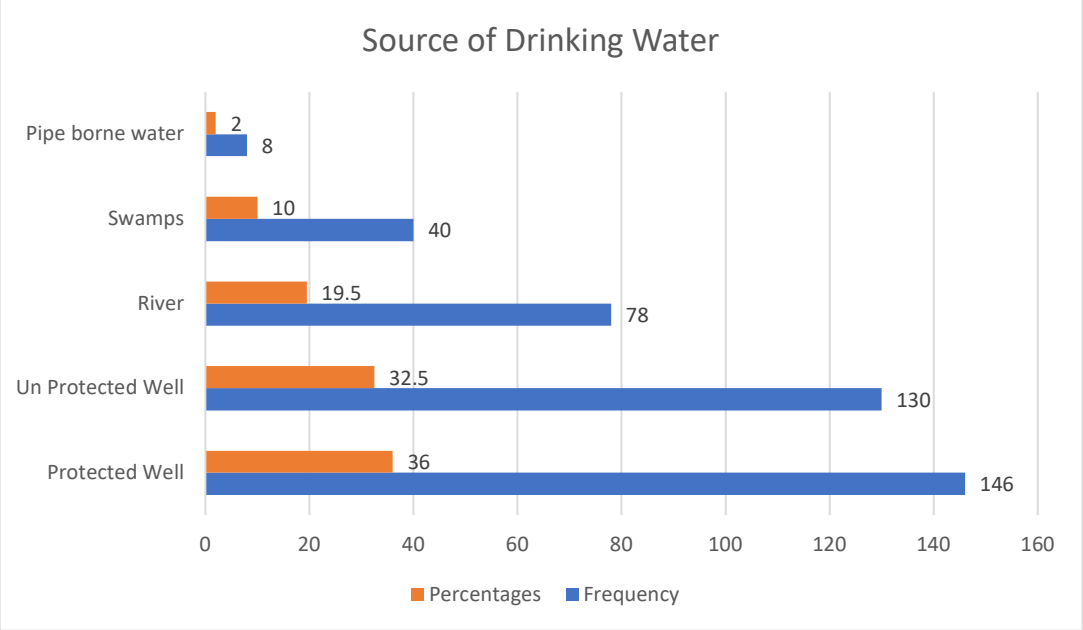


Figure 9: Drinking Water Sources

4.2.7 Sanitation

Sanitation practices within the SAPZ Project-affected communities in Port Loko District indicate significant public health and environmental challenges. The most common method of defecation reported by respondents is open defecation, often occurring in nearby bushes, rivers, and streams, as well as through the use of rudimentary pit latrines located at the rear of residential dwellings. These practices contribute to the contamination of surface water sources and increase the risk of waterborne diseases such as diarrhoea and typhoid.

Solid waste management in the surveyed communities is primarily informal. Respondents reported disposing of household waste through open dumping, burial, or uncontrolled burning. The burning of waste contributes to localized air pollution and may pose health risks, particularly to children, the elderly, and individuals with respiratory conditions.

These findings underscore the need for investment in improved sanitation infrastructure and waste management systems as part of broader community health and environmental protection efforts under the SAPZ Project.

4.2.8 Disease Prevalence

Health data collected from the SAPZ Project-affected communities in Port Loko District indicate a range of commonly reported illnesses that reflect underlying environmental, nutritional, and healthcare access challenges in the area. Among the 400 respondents surveyed, malaria was the most frequently reported illness, with 112 individuals indicating recent or recurrent experience of

the disease. This confirms malaria as a leading public health concern in the district, consistent with national trends in endemic areas.

Typhoid fever was reported by 78 respondents, suggesting significant exposure to contaminated water sources and poor sanitation conditions. Body pains, potentially linked to musculoskeletal stress or chronic infections, were noted by 68 respondents, and may reflect both occupational health risks and limited access to diagnostic healthcare services.

Other health concerns reported include hernias (58 respondents) and skin diseases (38 respondents). The occurrence of hernias may be associated with physical labour and lack of preventive health education, while the prevalence of skin conditions points to ongoing hygiene and sanitation challenges in the project area.

Less frequently reported but still notable conditions include kwashiorkor (20 respondents) and blindness (16 respondents). Kwashiorkor is indicative of nutritional deficiencies, particularly among children, and highlights the importance of food security and dietary diversity. Elephantiasis, a neglected tropical disease linked to vector exposure and poor sanitation, was reported by 10 respondents.

This disease profile emphasizes the importance of integrated health planning alongside agricultural development, particularly in addressing communicable diseases, sanitation-related illnesses, and nutrition.

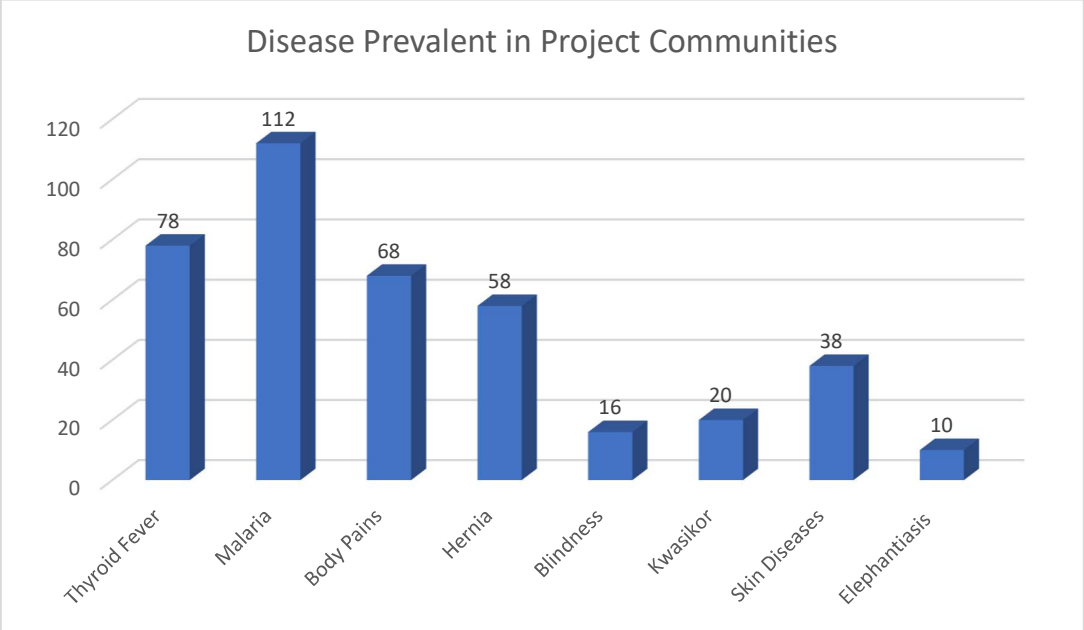


Figure 10:Diseases prevalent in project communities

4.2.9 Religious Affiliation

The religious profile of the SAPZ Project-affected communities in Port Loko District is composed of three main religious groups: Islam, Christianity, and other denominations. Among the 400 respondents surveyed, Muslims accounted for 62%, representing the majority religious affiliation in the area. Christians comprised 30.5% of the surveyed population, while 7.5% of respondents identified with other religious or spiritual beliefs.

This distribution reflects the religious diversity present within the project area, with Islam being the dominant faith tradition, followed by a substantial Christian minority and smaller segments adhering to alternative belief systems. These findings provide important context for understanding local social dynamics and may inform culturally appropriate engagement strategies during project planning and implementation.

Table 3: : Religious affiliation of respondents

Religious Affiliation	Number of Respondents	Percentage (%)
Muslim	248	62.00
Christian	122	30.50
Other	30	7.50
Total	400	100.00

5 STAKEHOLDER ENGAGEMENT

This chapter presents a focused account of stakeholder engagement activities conducted in Port Loko District under the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project. It includes detailed information on the culturally appropriate and inclusive Grievance Redress Mechanism (GRM) and documented consultations with communities and stakeholders in compliance with AfDB Operational Safeguards 1, 5, and 10. Please note that comprehensive standalone Stakeholder Engagement Plan and Greievance Redress Mechanism have been drafted to guide SAPZ Project implementation.

5.1 GRIEVANCE REDRESS MECHANISM (SUMMARY)

An effective grievance redress mechanism (GRM) is essential to stakeholder engagement. It ensures that individuals or groups who believe they have been adversely affected by project activities can raise concerns and receive timely, transparent, and culturally appropriate responses. The GRM for the SAPZ Project was developed in May 2025 and applies across all project sites in Kambia and Port Loko Districts.

5.1.1 Objectives of the GRM

- Provide a clear, accessible, and inclusive process for receiving and resolving complaints.
- Strengthen transparency and accountability in project delivery.
- Prevent escalation of disputes through early resolution.
- Ensure that the rights of affected persons, especially vulnerable groups, are protected.

5.1.2 Scope of the GRM

The GRM covers all SAPZ-related grievances, including but not limited to:

- Land access and voluntary donation disputes.
- Labour and employment-related grievances.
- Environmental concerns (e.g., dust, noise, chemical use).
- Social impacts (e.g., GBV/SEA/SH, exclusion from benefits).
- Delays or gaps in communication or stakeholder consultation.
- Perceived corruption or malpractice by project implementers.

5.1.3 GRM Structure and Process

The GRM operates through a four-tier structure, ensuring complaints are addressed as close to the source as possible:

Level	Mechanism / Committee	Lead Actor
Community / Sectional Level	Community Grievance Redress Committee (CGRC)	Section Chief (Chair), supported by field agents
Chiefdom Level	Chiefdom GRC	Paramount Chief (Chair), assisted by Ward Councillor
District Level	District GRC	District Agriculture Officer / Council Rep (Chair)
National / Project Level	SAPZ Project GRC	PIU Social Safeguards Specialist (Registrar), MAFS Chair

Each level includes representatives from women, youth, farmers, landowners, and persons with disabilities. Technical experts (e.g., labour officers, GBV specialists) may be co-opted when required.

5.1.4 Steps in the GRM Process

1. **Receiving and Acknowledging Complaints:** Via drop boxes, in-person, phone, or digital platforms; all complaints are registered by the assigned focal point.
2. **Screening and Classification:** Complaints are categorized by risk level and assigned to the appropriate committee.
3. **Investigation and Resolution:** The committee investigates and proposes resolution within a defined timeframe (e.g., 14 days for community-level cases).
4. **Escalation (if unresolved):** Complaints can be elevated to the next level if not resolved satisfactorily.
5. **Feedback and Closure**: Complainants are informed of outcomes and their right to escalate or seek judicial remedy.

5.1.5 Integration with Stakeholder Engagement

The GRM is a key feedback loop within the broader stakeholder engagement process. Key integration points include:

- SEP consultations will inform communities about the GRM and how to use it.
- GRM summaries will be shared during community meetings and disclosed on notice boards and local radio.
- GRM data will be used to adapt SEP activities (e.g., if complaints show gaps in engagement or inclusion).
- Safeguards staff will triangulate feedback from both the SEP and GRM to refine project approaches.

5.1.6 Special Procedures for GBV / SEA / SH Complaints

- A confidential referral protocol exists for survivors of Gender-Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH).

- These complaints are not handled through the general GRM but referred to the Family Support Unit (FSU) or other relevant service providers.
- Survivors may report anonymously, and resolution will prioritize safety, dignity, and consent.

5.1.7 Monitoring and Reporting

The PIU will track all grievances through a central Grievance Monitoring Matrix, disaggregated by type, location, gender, and resolution status. Key indicators include:

- Number of grievances received and resolved;
- Average resolution time;
- Percentage of grievances resolved at the community level;
- Satisfaction levels (where feedback is available).

Grievance data will be included in monthly environmental and social implementation reports and reviewed during stakeholder coordination meetings.

5.2 Stakeholder Engagement During ESIA Preparation

The preparation of the safeguard documents for the SAPZ was grounded in extensive stakeholder consultations carried out during the development of the Environmental and Social Impact Assessments (ESIAs) for Kambia and Port Loko Districts, the Grievance Redress Mechanism (GRM), the Stakeholder Engagement Plan (SEP) and the Pest Management Plan (PMP). These consultations ensured that the views of project-affected persons (PAPs), local institutions, and other stakeholders were integrated into the design of the SAPZ's safeguard instruments.

5.2.1 Consultation Objectives

- Inform stakeholders about the SAPZ Project objectives, scope, and expected impacts.
- Identify concerns and expectations related to land use, livelihoods, environment, and social risks.
- Gather feedback to shape risk mitigation measures, engagement strategies, and grievance procedures.
- Ensure early inclusion of vulnerable groups, including women, youth, and persons with disabilities.

5.2.2 Methods Used

- Community meetings in target villages near proposed project sites;
- Focus Group Discussions (FGDs) with women, farmers, youth, and land users;
- Key Informant Interviews (KIIs) with Paramount Chiefs, District Agricultural Officers, council representatives, and EPA-SL officials;
- Stakeholder workshops with NGOs, civil society, and MAFS technical teams;
- Informal dialogues during site reconnaissance and baseline data collection.

All engagement sessions were conducted in Krio and local languages with support from community facilitators to ensure accessibility and cultural appropriateness.

5.2.3 Summary of Stakeholders Consulted

District	Location	Stakeholder Type	Method	Date(s)
Kambia	Mambolo, Kychum, Robanna	Farmers, landowners, youth, women's leaders, town chiefs	FGDs, community meetings, KIIs	Oct 2024, Feb–Apr 2025
Port Loko	Kathoma, Mange, Rothum, Mankara	Traditional authorities, women, youth, farmers	FGDs, KIIs, meetings	Feb–Apr 2025
Both	District HQs and Chiefdoms	District Councils, DAOs, EPA-SL, MAFS	KIIs	Apr – May 2025
National	Freetown	MAFS, EPA-SL, MLCP, SLSB	Technical meetings	May 2025

5.2.4 Key Issues Raised by Stakeholders

The consultations generated a range of inputs which were integrated into the SEP and other safeguards tools:

Issue Raised	Response/Integration into SEP
Need for clarity on land access procedures.	SEP includes targeted engagement for farmers and awareness on FPIC and land tenure under the Customary Land Rights Act
Concerns about gender-based violence and labour influx during construction	SEP includes tailored outreach and GBV/SEA mitigation integrated with GRM referral protocols
Risk of exclusion of women and youth from project benefits	SEP provides for disaggregated FGDs and quotas in consultations; youth/women reps are included in GRCs
Lack of information on agrochemical risks and safe use	SEP links to PMP and outlines training through DAOs and CSOs on pesticide safety and IPM
Interest in local employment and SME opportunities in AIHs and ATCs	SEP includes communications on jobs, business services, and engagement with private sector
Demand for transparent complaint handling	SEP outlines full GRM structure and regular community-level grievance reporting
Delayed delivery of inputs (seeds, fertilizers, etc.) in previous programs	SEP incorporates early-season consultation with farmers to determine input needs and timelines; feedback loop through the GRM to address procurement and distribution delays

5.2.5 Community Stakeholder Engagements

Community/Chiefdom/Date	Dates Kathoma / Kamasondo Chiefdom / 12th February 2025 Mange / Bureh Chiefdom / 14th February 2025 Rothum / Bureh Chiefdom / 16th February 2025 Mankara / Bureh Chiefdom / 13th February 2025
ESIA Team & Key Persons Met	**ESIA Team:** Abdulai Conteh, Environmental and Social Impact Assessment (ESIA), Consultant; Joseph Kaindaneh, Environmental and Social Safeguards Specialist, assigned from the Sierra Leone Rice Agro-Industrial Cluster Project, MAFS; Mamie Tucker, Monitoring and Evaluation Specialist, SLARiS Project Key Persons Met: Kathoma: Mange: Rothum: Mankara: Sheiku Marah (Chief), Shenbureh Marah (Mami Queen), Kelfa Marah-(Famer), Kelly Koroma-(Youth Leader), Musa Jawara (Farmer), Saio Koroma-(Farmer), Mohamed Marah-(Farmer), Fasalie Kamara-(Farmer), Daniel Marah-(Head Master), Sundu

	Marah-(Community Based Officer), Konkofa Koroma-(Community Based Officer), Foray Sesay-(Farmer), Ferengbe Koroma (Farmer), Maforay Marah-(Farmer), Fallah Marah-(Farmer), Mantenneh Koroma-(Farmer), Finnah H. Koroma- (Farmer). Other communities' members present counted were over 143 There were about 100 community members comprising of Community Elders, Farmers, Tribal Authorities, Women, Youth and Children;
Issues Presented	During a stakeholder engagement meeting held with local community members, the SAPZ Project team, represented by Joseph Kaindaneh and Mamie Tucker, provided a comprehensive overview of the proposed Sierra Leone Special Agro-Industrial Processing Zone (SAPZ) Project. The presenters emphasized that, as part of due diligence, all investment projects financed by the African Development Bank (AfDB) must adhere to both the Bank's Environmental and Social (E&S) Safeguards Standards and the E&S regulatory requirements of the Government of Sierra Leone (GoSL). The team noted that their visit was part of ongoing efforts by the GoSL and AfDB to identify and proactively address potential environmental and social impacts of the SAPZ Project, particularly those involving community access to land and natural resources. They stressed that active participation and the inclusion of community voices are critical to the project's success and that the project will depend on the availability of adequate land from host communities for activities such as rice production, processing, and the development of transformation hubs. Following this, Mr. Abdulai Conteh, the Environmental and Social Impact Assessment (ESIA) Consultant, delivered a detailed presentation on the purpose and value of the ESIA process. He explained that the ESIA is a critical instrument for assessing potential

	negative and positive environmental and social impacts associated with development projects like SAPZ. It serves as a tool to inform decision-making, enhance project sustainability, and develop appropriate mitigation measures to manage adverse effects. Mr. Conteh outlined several key benefits of the ESIA process, including: • Protection of environmental and social well-being; • Promotion of compliance with national and donor safeguard requirements; • Facilitation of informed planning and decision-making; • Provision for meaningful stakeholder engagement; • Establishment of mechanisms for grievance redress and communication. He encouraged participants to share their concerns, expectations, and any issues they believed should be taken into account. Topics he invited the community to comment on included: • Socio-cultural practices related to land and natural resources; • Traditional rites or sacred areas around the proposed SAPZ sites; • Gender equity in land access and benefit-sharing; • Potential land acquisition or resource use restrictions; • Preferred sustainable livelihood alternatives; • Environmental or social concerns specific to the communities; • Community leadership and land ownership structures; • Preferred channels for information dissemination and grievance resolution; • Opportunities and constraints to community participation; • Anticipated risks and threats to project success from a local perspective. This session concluded with a call for open dialogue and inclusive participation to ensure the SAPZ Project is responsive to community needs and priorities and implemented in an environmentally and socially responsible manner.

Responses & Discussions	Community Feedback and Reactions Following the SAPZ Project presentation, several community leaders and residents shared their reflections and feedback on the proposed initiative and the ongoing Environmental and Social Impact Assessment (ESIA) process. **Edward Lahai Marah**, the local councillor, expressed strong support for the SAPZ Project, emphasizing its potential to address the growing challenge of food insecurity in Sierra Leone. He assured the team of the community's full willingness to allocate land—both existing farmlands and additional areas—for project implementation. He further noted that such land allocation would not infringe on any ecologically sensitive zones such as forest reserves or protected areas. Councillor Marah advocated for continued stakeholder consultations throughout the project lifecycle to ensure transparency and local ownership. **The Town Chief of Kathoma** echoed this enthusiasm, describing the SAPZ as a project that would benefit not only his own community but the entire region. He confirmed the community's readiness to voluntarily provide land and expressed gratitude to the Government of Sierra Leone, the African Development Bank (AfDB), and the project consultants. He stressed the importance of open communication and reiterated the community's commitment to supporting project implementation. **Karifa Kamara**, a community member, shared his appreciation and highlighted that the people of the area have long recognized their agricultural potential and have eagerly awaited an opportunity such as the SAPZ. He affirmed that they were willing to voluntarily donate land and noted the availability of both active farmland and secondary forest areas suitable for project activities. **Alie Marah**, another Town Chief, expressed his support for the project and offered blessings for its success. He welcomed the new boundary demarcation proposal and confirmed the community's willingness to cooperate fully with project requirements. **Musah Kamara**, a respected town elder, stated that the SAPZ would enhance local rice production and improve the socio-economic conditions of the community, especially for women and youth. He emphasized that the lands to be donated do not encroach on any sensitive environmental habitats and voiced the community's keen anticipation for project commencement.
	Summary of Community Feedback and Expectations

	Community Observations and Conditions:
	
	• The dominant ethnic groups in the project locations (Kathoma, Mange, Mankara, Rothum) are the Temne and Loko.
	• All proposed SAPZ sites for voluntary land donation are outside protected areas or critical natural habitats and primarily consist of active farmlands and secondary forests.
	• Clear demarcation and mapping of the land parcels are requested to avoid future disputes.
	
	Livelihood Preferences and Suggestions:
	
	• In addition to rice farming, community members expressed interest in livelihood support through:
	  o Livestock rearing (including poultry),
	  o Civil works employment,
	  o Community health facilities,
	  o Educational infrastructure (especially for the girl-child),
	  o Tools for local road maintenance, and
	  o Access to improved water supply (gravity-fed systems, deep wells).
	
	Community Expectations of Leadership:
	
	• Chiefs and local leaders are expected to mobilize the community, conduct sensitization, and enforce agreed terms related to land use.
	• Formal agreements or Memoranda of Understanding (MoUs) should be developed and upheld to ensure transparency and fairness.
	
	Women and Youth Priorities:
	
	• Greater understanding of the SAPZ Project's components and benefits.
	• Access to transportation for rice and vegetables to markets.
	• Reliable and timely access to seeds and fertilizers to avoid water pollution and improve yields.
	• Alternative protein sources for nutrition.
	• Interest in micro-finance opportunities to support agribusiness.
	• Clarification on the benefits communities will receive in exchange for voluntarily donated land.

This feedback underscores a strong willingness to support the SAPZ Project, coupled with clear community expectations for transparency, inclusion, and tangible benefits. The project team is expected to integrate these views into its planning, land acquisition, and benefit-sharing frameworks.

Table 1: Summary of Concerns, Comments and Views from Stakeholder Engagements in Selected Communities in Port Loko District

Comments, Issues and Views	Required Action / Response	Expectations
No drying floor and shelter from the sun and rain	The project will construct drying floors and shelters to provide facilitate rice drying and provide shelter	• Provision of personal protective equipment (PPE) for machine operators, farmers, and during fertilizer application activities. • Incorporation of local expertise in the development of the irrigation system and other project-related infrastructure • Project stakeholders are looking forward to environmental sustainability and technological innovation. • There is an expectation among stakeholders for support in acquiring quality seedlings, maintaining agricultural practices, and accessing machinery.
Poor land development of rice fields from previous intervention projects	The project aims to improve land development practices through comprehensive evaluations and insights from past interventions. It will focus on detailed, sustainable land development plans that involve community engagement, aligned with the goals of the Environmental and Social Management Plan (ESMP) and the Environmental and Social Impact Assessment (ESIA). Additionally, strong monitoring and evaluation systems will be put in place to continuously assess progress and make necessary adjustments.	

	Community members have expressed the need for a transparent and user-friendly process for submitting complaints and grievances.	Robust grievance redress mechanism (GRM) will be implemented to guarantee the prompt and equitable resolution of concerns.	• Stakeholders anticipate that the project will lead to market diversification. • Stakeholders expect the initiative to contribute to foreign exchange savings. • A crucial expectation is the creation of stable markets for local farmers, ensuring a reliable outlet for their produce. • Stakeholders foresee the project as a catalyst for business growth and development within the community. • Increased rice production and enhanced food security are anticipated by stakeholders. • There is an expectation for improved access to land for women.
	Stakeholders voiced their concerns regarding wildlife incursions on rice farms, specifically highlighting the adverse impact of Grasscutters and cattle.	The project will introduce wildlife management strategies and protective measures outlined in the Environmental and Social Management Plan (ESMP) to effectively protect crops.	
	Commitment to fostering ongoing engagement and maintaining transparent communication channels.	The project management team will ensure ongoing stakeholder engagement and maintain transparent communication channels throughout the project, as outlined in the Stakeholder Engagement Plan (SEP).	
	Fears that the project might impact water quality, specifically due to pesticides and saltwater intrusion.	A robust environmental management plan will be established to address water quality concerns, asoutlined in the ESMP.	
	The insufficient availability of pumping machines presents a significant challenge to meeting irrigation requirements.	The project will guarantee the supply of pumping machines to enhance irrigation efforts.	

Pictures	
Rothum	

Kathoma				
Mankara				

6 ENVIRONMENTAL BASELINE

Sierra Leone is located on the west coast of Africa and covers an area of approximately 71,740 km². The country is ecologically diverse, comprising four main geographic regions: coastal mangrove swamps, the interior lowland plains, the forested hill country, and the savannah woodlands in the northeast. The climate is tropical, characterized by distinct wet (May–October) and dry (November–April) seasons. Annual rainfall averages between 2,000 mm in the coastal areas and 3,000 mm in the east.

Sierra Leone is endowed with significant biodiversity, including globally important mangrove ecosystems, rainforests, and inland valley swamp systems (IVS). However, environmental degradation is a critical issue driven by deforestation, mining activities, agricultural expansion, and weak regulatory enforcement.

The country has ratified numerous international environmental treaties, including the Convention on Biological Diversity, the Ramsar Convention on Wetlands, and the UN Framework Convention on Climate Change (UNFCCC). National policies and institutions, such as the Environment Protection Agency (EPA-SL), aim to address these challenges, although institutional capacity remains limited.

6.1 CLIMATE

Port Loko District experiences a tropical monsoon climate, with an average annual rainfall of approximately 2,500–3,000 mm, predominantly falling between May and October. Temperatures are consistently warm throughout the year, typically ranging between 25°C and 30°C. Humidity levels are high, especially during the rainy season. The dry season is influenced by the Harmattan winds, which bring dusty, dry air from the Sahara.

There are two seasons determining the agricultural cycle: the rainy season from May to November, and a dry season from December to May, which includes harmattan, when cool, dry winds blow in off the Sahara Desert

6.2 TOPOGRAPHY AND GEOLOGY

The topography of Port Loko is predominantly flat to gently undulating, consisting mainly of lowland plains interspersed with occasional low hills. The district forms part of the broader Sierra Leone coastal plains. Soils are generally alluvial and ferrallitic, supporting diverse agricultural activities but prone to erosion and nutrient depletion without sustainable management. Areas near river systems, particularly the Rokel River which flows through Port Loko District, have fertile swamp soils suitable for rice cultivation.

6.3 SOILS

The soils in Port Loko are predominantly hydromorphic and ferralsols. These soils are highly suitable for agriculture, particularly for rice, cassava, and groundnut production. However, soil fertility is often compromised due to unsustainable land management practices, slash-and-burn agriculture, and overcultivation without adequate fallow periods. In areas adjacent to mining activities, soil contamination with heavy metals has been reported, though mainly in neighbouring districts.

6.3.1 Soil Analysis for the SAPZ Project Sites in Port Loko District

The primary objective of this analysis was to evaluate the physical and chemical properties of soils collected from selected SAPZ project sites in Port Loko District. The results will guide appropriate soil fertility management strategies to support sustainable agricultural activities.

Soil samples were collected from four communities within Port Loko District: Kathoma (Kamasondo Chiefdom), Mankara (Bureh Chiefdom), Mange (Bureh Chiefdom), and Rothum (Bureh Chiefdom). These sites were identified as Inland Valley Swamp (IVS) rehabilitation areas.

Composite soil samples were collected, air-dried, sieved to <2 mm, and analysed for key fertility indicators: pH, electrical conductivity (EC), texture, organic carbon (C), total nitrogen (N), available phosphorus (P), and exchangeable potassium (K). Standard laboratory procedures and instruments were used.

Key Findings

- Soil pH values ranged from 6.32 to 7.57, indicating slightly to moderately acidic conditions. Electrical conductivity values ranged from 89.7 to 268 µS/cm, all within acceptable limits, indicating low salinity risk.
- All samples exhibited sandy clay loam texture, suitable for rice cultivation. This texture supports moderate water retention and good drainage capacity.
- Soil organic carbon levels ranged from 1.97% to 6.57%, indicating medium to high organic matter content. Total nitrogen content was generally low (0.03% to 0.07%), suggesting the need for nitrogen supplementation through organic or inorganic sources.
- Available phosphorus levels ranged from 0.15 to 3.13 mg/kg, falling within low to moderate availability. Exchangeable potassium was also low across all samples, ranging from 0.01 to 0.03 cmol/kg. These deficiencies highlight the need for phosphorus and potassium fertilization to support crop productivity.

Table 4: Soil Analysis - Port Loko District

Location	pH	EC (µS/cm)	Sand (%)	Silt (%)	Clay (%)	Organic Carbon (%)	N (%)	P (mg/kg)
Kathoma	6.32	120.1	63	9	28	2.33	0.06	0.55
Mankara	7.57	268.0	63	9	28	1.97	0.06	0.92
Mange	7.13	94.4	61	11	28	6.57	0.03	0.15
Mange	6.34	124.6	57	15	28	2.09	0.03	3.13
Rothum	6.62	89.7	55	17	28	2.52	0.07	0.69

6.4 Hydrology and Water Resources

The district is drained by several important rivers, most notably the Rokel River and its tributaries. Inland valley swamps (IVS) are widespread and are vital for rice cultivation. However, seasonal flooding during heavy rains are common, impacting agricultural production and rural livelihoods. Surface water quality is affected by agricultural runoff, domestic waste discharge, and, in some areas, sand mining activities. Access to potable water remains a challenge for many rural communities.

6.4.1 Water Analysis for the SAPZ Project Sites in Port Loko District

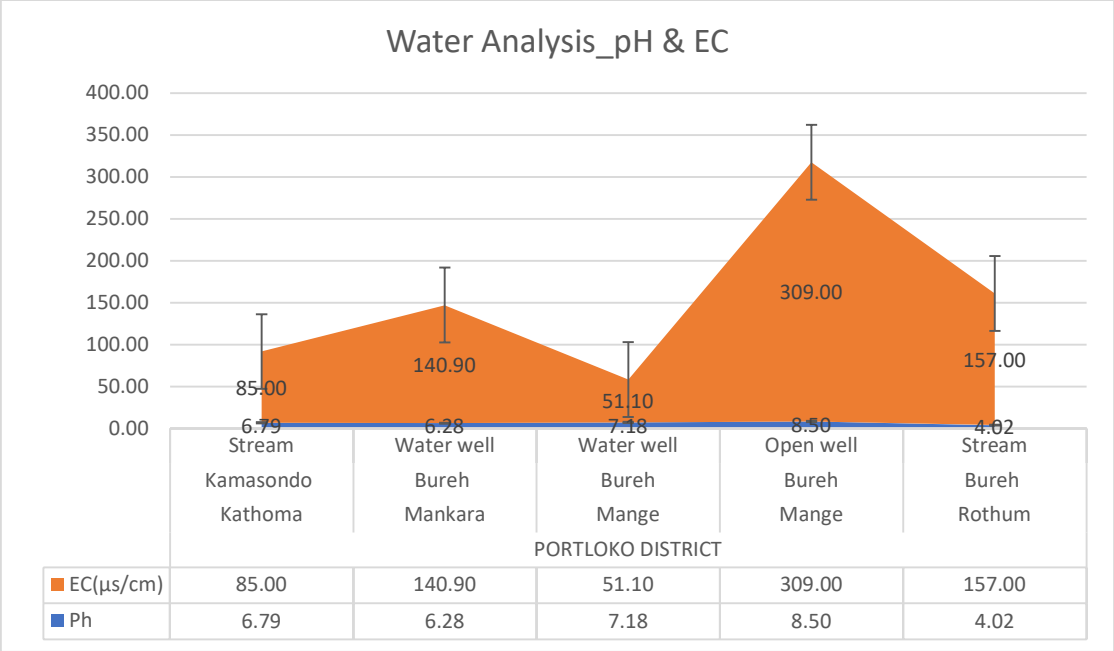
This section presents the analysis of water quality parameters from samples collected in the SAPZ project areas. The goal is to assess their suitability for agricultural use, particularly for rice cultivation.

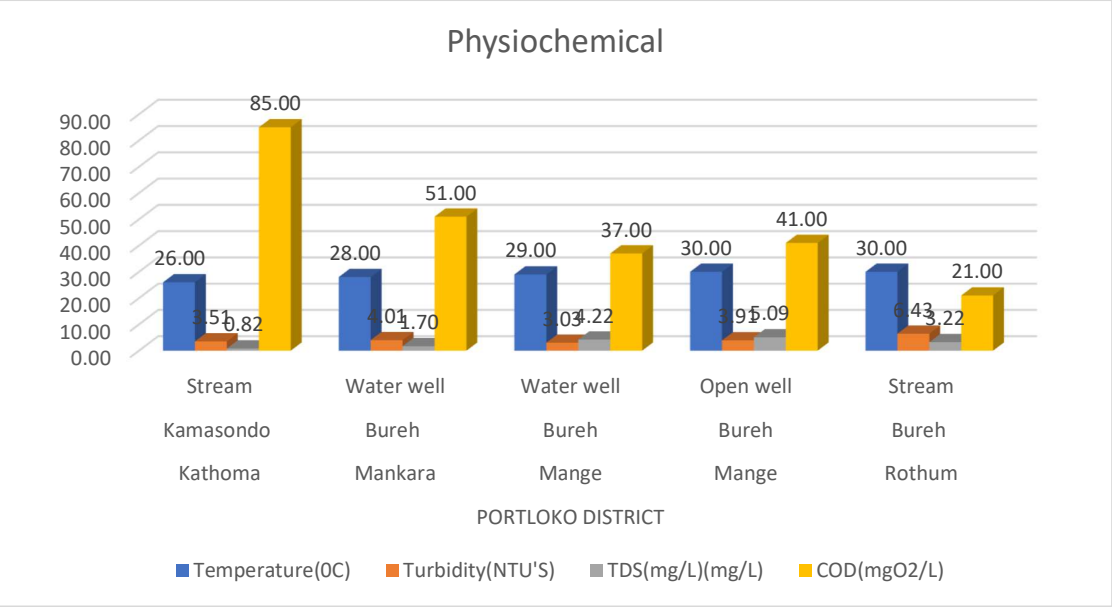
Water samples were collected from the same sites as the soil samples. Parameters tested included pH, electrical conductivity (EC), temperature, turbidity, total dissolved solids (TDS), and chemical oxygen demand (COD). Analyses followed standard laboratory procedures using handheld meters and spectrophotometers.

Key Findings

- **pH**: Two samples has pH levels outside normal ranges, namely an open well in Mange and stream in Rothum with pH 8.5 (alkaline) and pH 4 (acidic) respectively.
- **EC**: Electrical conductivity was within safe limits, indicating low salinity.
- **Temperature**: All samples exceeded the WHO-recommended 23°C, likely due to lab conditions.
- **Turbidity**: Levels were within WHO guidelines (<5 NTU).
- **TDS**: Concentrations were below the 500 mg/L threshold.
- **COD**: All samples had COD values within the permissible 250–500 ppm range.

These results confirm that the water sources assessed are generally suitable for agricultural use, although source-specific monitoring is recommended.





6.5 BIODIVERSITY AND ECOSYSTEMS

Port Loko District contains diverse habitat classes, including estuarine mangroves, inland freshwater wetlands, and savannah woodland mosaics. The estuarine mangrove systems, located along the coastal fringe, serve as critical breeding and nursery habitats for fish, crustaceans, and other aquatic fauna, thereby sustaining local artisanal fisheries and ecosystem productivity.Inland areas support diverse bird species and small mammals. However, biodiversity is under pressure from land conversion for agriculture, fuelwood collection, and unmanaged hunting. Deforestation of mangroves for charcoal production is a particularly acute issue. Port Loko district unlike several other districts in Sierra Leone does not contain any legally protected areas of high biodiversity within the project areas of influence according to the National Protected Area Authority (NPAA).

6.5.1 Ecosystem services

The district provides and the project areas provide several ecosystem services in terms of ecology, economics and social servces.

- Food production: The district's inland valley swamps (IVS), Boli lands, and upland areas support extensive rice cultivation, while fisheries in mangrove and estuarine ecosystems provide protein and livelihoods for local communities.
- Charcoal: Savannah woodland and secondary forests supply biomass energy for household use and as a source of income.
- Freshwater: Wetlands and seasonal streams serve as key sources of water for domestic use, agriculture, and livestock, particularly in rural areas without piped water infrastructure.
- Flood mitigation: Mangrove forests and inland wetlands play a critical role in regulating water flow, absorbing excess rainfall and reducing downstream flood risks.
- Climate regulation: Vegetative cover, particularly in mangrove and woodland areas, contributes to carbon sequestration and microclimate regulation, mitigating the effects of climate change at the local level.

- Water purification: Wetlands provide natural filtration of runoff, reducing sediment and nutrient loads entering rivers and estuaries.
- Biodiversity habitat: The district's varied ecosystems support a wide range of flora and fauna, including migratory birds, fish, amphibians, and invertebrates. This biodiversity underpins the resilience of agricultural and natural systems.
- Soil formation and fertility: Seasonal flooding and organic matter decomposition in wetlands and floodplains contribute to soil nutrient cycling, benefiting agriculture.
- Spiritual and cultural heritage: Sacred groves and traditional uses of forested areas reflect the district's cultural identity and spiritual values.

6.5.2 Avifauna (Birds)

Sierra Leone is host to 583 bird species of which 19 are globally threatened bird species according to The International Union for Conservation of Nature (IUCN). A detailed avifaunal assessment was conducted in April 2025 across the four SAPZ project communities in Port Loko District, namely, Mange, Rothum, Mankara, and Kathoma. This survey aimed to evaluate the diversity and conservation status of bird species in the project area to inform mitigation planning under the ESIA.

6.5.2.1 Methodology

Standardized transect walks and point count techniques were used along accessible roads and footpaths, focusing on agricultural lands and adjacent habitats. Observations included both visual and acoustic detections, with additional mist-netting in less disturbed zones. Fieldwork spanned morning and late afternoon hours, including limited nocturnal surveys.

6.5.2.2 Key Findings

A total of 70 bird species were recorded within the project areas, representing 12% of Sierra Leone's national total. Notably, one globally vulnerable species the Rufous Fishing Owl (Scotopelia ussheri) was directly observed in undisturbed grasslands in Mange. Of the species identified during the baseline studies, 59 were native residents, 9 Palearctic migrants, and 2 intra-African migrants. While species richness was lower than in protected areas such as Loma and Bumbuna, this is attributed to habitat degradation and land-use pressures in the project region.

The limited diversity and low occurrence of avian species of conservation concern, in which only one species was recorded suggest that the study area in Port Loko holds relatively lower conservation value for birds compared to national biodiversity hotspots such as the Loma Mountains and Bumbuna where nine and seven respectivey would be expected out of a total of nineteen birds species of conservation concern present in the country. This pattern may reflect ongoing habitat modification and the predominance of human-altered landscapes within the surveyed sites.

Table 5: Bird recorded within the project areas

Key

IUCN STATUS: CR – CRITICALLY ENDANGERED; VU – VULNERABLE; LC – LEAST CONCERN;

SPECIES ENTEMOLOGY: **AM – INTRA-AFRICAN MIGRANT; PM – PALAEARCTIC MIGRANT; R – RESIDENT**

Family/Species	Common name and IUCN Status (in parenthesis)	Inside PDA	Species Ecology
PHALACROCORACIDAE			
Phalacrocorax africanus	Long-tailed Cormorant (LC)	x	AM
ARDEIDAE			
Egretta intermedia	Intermediate Egret (LC)	x	
CICONIIDAE			
Ciconia episcopus	Woolly-necked Stork (LC)	x	AM
ACCIPITRIDAE			
Gypohierax angolensis	Palm-nut Vulture (LC)	x	R
Polyboroides typus	African Harrier Hawk (LC)	x	R
Kaupifalco monogrammicus	Lizard Buzzard (LC)	x	R
Pandion haliaetus	Osprey (LC)	x	
PHASIANIDAE			
Francolinus bicalcaratus	Double-spurred Francolin (LC)	x	R
Francolinus ahantensis	Ahanta Francolin (LC)	x	
COLUMBIDAE			
Turtur tympanistria	Tambourine Dove (LC)	x	R
Turtur afer	Blue-spotted Wood Dove (LC)	x	R
Streptopelia semitorquata	Red-eyed Dove (LC)	x	R
MUSOPHAGIDAE			
Corythaeola cristata	Great Blue Turaco (LC)	x	R
Psithacus timneh	Timneh Parrot (VU)	x	
CUCULIDAE			
Chrysococcyx cupreus	African Emerald Cuckoo (LC)	x	R
Ceuthmochares aereus	Yellowbill (LC)	x	R
Centropus senegalensis	Senegal Coucal (LC)	x	R
CAPRIMULGIDAE			
Caprimulgus inornatus	Plain Nightjar (LC)	x	R
Macrodipteryx longipennis	Standard-winged Nightjar (LC)	x	
APODIDAE			
Apus affinis	Little Swift (LC)	x	R
ALCEDINIDAE			
Halcyon malimbica	Blue-breasted Kingfisher (LC)	x	R
Halcyon senegalensis	Woodland Kingfisher (LC)	x	R
STRIGIDAE			
Scotopelia ussheri	Rufous Fishing Owl (VU)	x	R
MEROPIDAE			
Merops persicus	Blue-cheeked Bee-eater (LC)	x	
CORACIIDAE			

Eurystomus gularis	Blue-throated Roller (LC)	x	R
BUCEROTIDAE			
Tockus fasciatus	African Pied Hornbill (LC)	x	R
Bycanistes fistulator	Piping Hornbill (LC)	x	R
CAPITONIDAE			
Pogoniulus scolopaceus	Speckled Tinkerbird (LC)	x	R
Pogoniulus atroflavus	Red-rumped Tinkerbird (LC)	x	R
Pogoniulus bilineatus	Yellow-rumped Tinkerbird (LC)	x	R
PICIDAE			
Dendropicos fuscescens	Cardinal Woodpecker (LC)	x	R
HIRUNDINIDAE			
Psalidoprocne nitens	Square-tailed Saw-wing (LC)	x	R
Hirundo lucida	Red-chested Swallow (LC)	x	R
Pseudhirundo griseopyga	Grey-rumped Swallow (LC)	x	
Hirundo rustica	Barn Swallow (LC)	x	
PYCNONOTIDAE			
Andropadus virens	Little Greenbul (LC)	x	R
Andropadus gracilirostris	Slender-billed Greenbul (LC)	x	R
Andropadus latirostris	Yellow-whiskered Greenbul (LC)	x	R
Chlorocichla simplex	Simple Leaflove (LC)	x	R
Pyrrhurus scandens	Leaflove (LC)	x	R
Phyllastrephus icterinus	Icterine Greenbul (LC)	x	R
Bleda canicapillus	Grey-headed Bristlebill (LC)	x	R
Pycnonotus barbatus	Common Bulbul (LC)	x	R
Nicator chloris	Western Nicator (LC)	x	R
TURDIDAE			
Stizorhina finschi	Finsch's Flycatcher Thrush (LC)	x	R
SAROTHRURIDAE			
Sarothrura pulchra	White-spotted Flufftail (LC)	x	
SYLVIIDAE			
Prinia subflava	Tawny-flanked Prinia (LC)	x	
Cisticola erythrops	Red-faced Cisticola (LC)	x	R
Cisticola lateralis	Whistling Cisticola (LC)	x	R
Camaroptera brachyura	Grey-backed Camaroptera (LC)	x	R
Camaroptera chloronota	Olive-green Camaroptera (LC)	x	R
Sylvietta virens	Green Crombec (LC)	x	R
Sylvietta denti	Lemon-bellied Crombec (LC)	x	R
Hylia prasina	Green Hylia (LC)	x	R
MUSCICAPIDAE			
Fraseria cinerascens	White-browd Frest Flycatcher (LC)	x	R
Melaenornis edolioides	Northern Black Flycatcher (LC)		
MONARCHIDAE			
Terpsiphone rufiventer	Red-bellied Paradise Flycatcher (LC)	x	R
PLATYSTEIRIDAE			

Platysteira cyanea	Common Wattle-eye (LC)	x	R
NECTARINIIDAE			
Cyanomitra olivacea	Olive Sunbird (LC)	x	R
Chalcomitra adelberti	Buff-throated Sunbird (LC)	x	R
Cinnyris coccinigastrus	Splendid Sunbird (LC)	x	R
MALACONOTIDAE			
Tchagra senegalus	Black-crowned Tchagra (LC)	x	R
Dryoscopus gambensis	Northern Puffback (LC)	x	R
Laniarius turatii	Turatis Boubou (LC)	x	
DICRURIDAE			
Dicrurus modestus	Velvet-mantled Drongo (LC)	x	R
CORVIDAE			
Corvus albus	Pied Crow (LC)	x	R
STURNIDAE			
Violet-backed Starling	Violet-backed Starling (LC)	x	
PLOCEIDAE			
Ploceus nigerrimus	Vieillot's Black Weaver (LC)	x	R
Ploceus cucullatus	Village Weaver (LC)	x	R
ESTRILDIDAE			
Nigrita canicapillus	Grey-headed Negrofinch (LC)	x	R
Spermestes cucullatus	Bronze Mannikin (LC)	x	R

6.5.3 Vegetation

6.5.3.1 Overview

The vegetation within the SAPZ project area in Port Loko District exhibits a mosaic of ecological types shaped by a combination of climatic, hydrological, and anthropogenic factors. The dominant vegetation types include farm bush, grassland savannas, early- and mid-successional forest regrowth, mangrove forests, swamp ecosystems, and riparian forests. These vegetation assemblages reflect a transition from historically forested landscapes to landscapes significantly influenced by agriculture, settlement expansion, and resource extraction.

Field investigations revealed that most of the project sites exhibit a sparse to moderately dense tree canopy cover, often not exceeding 5%, suggesting either early successional stages or persistent disturbance. This low canopy cover is typically accompanied by dense understory growth, dominated by fast-growing herbaceous and shrubby species. The frequent recurrence of fire, often linked to charcoal production and land clearing, further suppresses forest regeneration, contributing to the maintenance of open, bush-dominated landscapes.

6.5.3.2 Survey Methodology

Vegetation surveys were conducted using a systematic approach combining random plot sampling, line transects, and ethnobotanical assessments. A total of four communities—Kathoma, Mankara, Mange, and Rothum were surveyed. Within each site, 20x20m plots were established to assess canopy structure, species richness, and regeneration status. All vascular plants were recorded, with a focus on identifying species of conservation concern and understanding spatial distribution patterns. In addition, semi-structured interviews and focus group discussions were conducted to capture local knowledge of plant uses, ecosystem services, and historical vegetation changes.

6.5.3.3 Kathoma Village

The riparian corridor assessed near Kathoma Village revealed a relatively undisturbed and ecologically intact vegetation assemblage, with no species of conservation concern recorded. The prevalence of *Pandanus candelabrum* and species such as *Cleistopholis patens*, *Bambusa vulgaris*, and *Pterocarpus santalinoides* indicates a stable swamp forest fringe, characteristic of mid-successional stages. The dominance of hydrophilic and broadleaf tree species supports the classification of this habitat as a riparian mixed swamp forest, with moderate structural complexity. While prior rice cultivation has modified portions of the valley swamp, overall plant species abundance in this locality remains high, reflecting minimal recent disturbance in the riparian belt.

6.5.3.4 Mankara Village

Vegetation in Mankara Village is shaped by active secondary succession within an area undergoing natural forest regeneration, likely supported by traditional taboos linked to a nearby sacred grove. Canopy cover is sparse (<5%), and most woody species have a DBH <30 cm, confirming the early successional status. The site's moderate species richness, including both economically significant (*Elaeis guineensis*) and ecologically valuable (*Pentadesma butyracea*, *Anthonotha macrophylla*) taxa, indicates recovering ecosystem function, though maturity is far from achieved. The herbaceous stratum is diverse, with *Scleria barteri*, *Tridax procumbens*, and *Cissus spp.* dominating. A Sorensen similarity index of 65% suggests moderate homogeneity in species distribution across the site, a common trait in regenerating habitats influenced by similar disturbance histories. While species abundance is moderate, plant community structure remains simplified, limiting ecosystem services compared to climax forest habitats.

6.5.3.5 Mange Village

In Mange Village, a typical mosaic of early secondary forest and disturbed agricultural fallows defines the local vegetation. Tree species such as *Anthocleista vogelii* and *Diospyros heudelotii* are indicative of semi-deciduous secondary forests, while herbaceous plants like *Scleria barteri* and *Tridax procumbens* signal disturbed ground and transitional ecological conditions. The presence of useful species such as *Salacia senegalensis* (noted for its market value) and *Alchornea cordifolia* also highlights the economic reliance of the community on local flora. Species abundance here is typical of human-modified forest systems, where regrowth processes are occurring under continued anthropogenic pressure.

6.5.3.6 Rothum Village

The vegetation in Rothum Village is primarily herbaceous and shrubby, representative of uncultivated and seasonally inundated land. The abundance of wetland-tolerant and weedy species, including *Ipomoea aquatica*, *Costus afer*, and *Nymphaea lotus*, signals the presence of a wet grassland/seasonal marsh habitat. These communities typically exhibit high species abundance but low structural complexity, particularly in the absence of large woody vegetation. The recurrence of *Elaeis guineensis* points to prior cultivation history. While biodiversity here is modest, such wetland systems can deliver important ecosystem services, including water purification and seasonal grazing.

6.5.3.7 Species of Conservation Concern

While no critically endangered or endangered species were identified during the surveys, two Vulnerable species *Brachystegia leonensis* and *Terminalia ivorensis* were recorded. These species are important for timber and are under pressure from selective logging and agricultural expansion. Most other species identified were categorized as Least Concern or Not Assessed under the IUCN Red List. Notably, several culturally significant species used in traditional medicine, construction, and food preparation were found, including *Uapaca guineensis*, *Berlinia confusa*, and *Dialum guineensis*. It should be noted that these are not endemic to these areas and can be found all over Sierra Leone.

Table 6: Culturally significant plants in study area

No.	Scientific name	Family	Use
1.	Costus afer	Zingibaraceae	Whole plant used to cure bed wetting
2.	Alchorcordifolia	Euphorbiaceae	Leaf heated and placed on head with a cap over it to ease headache; Crush leaves and add to wound to stop bleeding
3.	Lovoa trichilloides	Meliaceae	To relieve dirty stomach
4.	Brillantaisia nitens	Acanthaceae	To relieve dirty stomach
5.	Irvingia gabonense	Irvingaceae	Fruits cooked as sauce
6.	Beilshmeidia manii	Lauraceae	Fruits cooked as sauce
7.	Avicennia nitida Rhizophora racemosa (LC)	Verbanaceae	Fuel wood, construction of houses
8.	Bombax buonopogenze	Bombacaceae	Construction of canoes, timber
9.	Berlinia confuse (**LC**)	Leguminosae-Caesalpinioidae	Charcoal production
10	Chrysophyllum pruniforme	Sapotaceae	Used in making tool components for weaving, Crush leaf and pour extract on the eye to clear dirt
11	Dialum guinensis	Leguminosae-Caesalpinioidae	Wild food, to make handle for metal tools
12	Usteria guineensis	Loganiaceae	Ropes for making traps
13	Xylopia aethiopica	Annonaceae	Spice for drinks; used as medicine for cold when boiled or smoked
14	Ochthocosmus africanus	Ixonanthaceae	Making tool handle, charcoal production
15	Blighia unijugata	Sapindaceae	Red fruits used as Fish poison
16	Brachestegia leonensis	Leguminosae-Caesalpinioidae	Timber
17	Parinari excelsa (**LC**)	Rosaceae	Wild food
18	Cola lateritia var maclaudi	Sterculiaceae	Wild food for man and primates
19	Uapaca guineensis	Euphorbiaceae	Timber
20	Homalium letusii	Samydaceae	Making tool handle, charcoal production

No.	Scientific name	Family	Use
21	Parkia bicolor (**LC**)	Leguminosae-Mimosioidae	Seeds used as food; seed also dried and cause to ferment to make 'kainda'
22	Cleistopholis patens	Annonaceae	Bark used to make improvised shoe
23	Cathormion altissimum	Leguminosae-Mimosioidae	Bark added to palm wine to increase male potency
24	Terminalia ivorensis(**V**)	Combretaceae	timber
25	Funtumia africana	Apocyanaceae	Floss used to fill pillows
26	Pycnanthus angolensis	Myristicaceae	Construction of canoe, timber
27	Bambusia vulgaris	GramiEPAe	House construction, cups for drinking palm wine
28	Morinda geminata	Rubiaceae	Leaf boiled for Medicine to treat malaria
29	Nauclea latifolia	Rubiaceae	Leaf boiled for Medicine to treat malaria; root peeled and added to sore
30	Anisophylla laurina	Anisophyllaceae	Construction of house; fruits are eaten
31	Pentadesma butyracea	Guttiferae	Timber; poles used for construction of house
32	Morinda morindoides	Rubiaceae	Used as medicine to relieve bad stomach
33	Neubouldia laevis	Bignoniaceae	The root is peeled, chopped, dried and pounded. The powder is tied to the area with pain to relieve the pain; leaf used to cure eye infection
34	Anthonotha macrophylla	Leguminosae-Caesalpinioidae	Fuel wood; cure for ruptured skin on head
35	Diospyros heudelotii	Ebenaceae	Wild food; used to make traps
36	Phyllanthus discoideus	Euphorbiaceae	Fuel wood
37	Mezoneurum benthamianum	Leguminosae-Caesalpinioidae	The roots and leaves are used to remove worms from the stomach; leaf used to remove evil food from the body; cures heart ache
38	Amphimas pterocarpoides	Leguminosae-Caesalpinioidae	To make canoe
39	Harungana madagascariensis	Hypericaceae	Fuel wood Bark used for rafting house. Scrape the bark and allow to be exposed to air for some period so that the latex can ooze out and later sucked in. This treatment will help as an insecticide
40	Hallea stipulosa (**V**)	Rubiaceae	Timber, The leaves used to wrap food, or cola nuts
41	Afromomum melagueta	Zingibaraceae	Fruits used as spice in medicine Mixed with cigarettes and smoked to relieve cough
42	Craterispermum laurinum	Rubiaceae	Used as medicine to relieve bad or upset stomach; the leaves are boiled and the extract added to banga to boil. It aid removal of more oil

No.	Scientific name	Family	Use
43	Nauclea diderrichii (**V**)	Rubiaceae	Bark boiled and drunk to cure malaria
44	Cassia sieberiana	Leguminosae-Caesalpinioidae	Root is boiled and drunk to cure malaria
45	Entada purseatha	Leguminosae-Mimosioidae	Used as rope during house construction
46	Musa sapientum	Musaceae	Crush bract and mix with water and to relieve running stomach
47	Manihot esculentus	Euphorbiaceae	Peel tuber and cut into chips and add water. Drink the content to relieve running stomach
48	Psychotria reptans	Rubiaceae	Used to make tool handles
49	Musanga cecrepioides	Moraceae	Used to make tool handles
50	Irvingia gabonnense	Irvingiaceae	Used to cure malaria
51	Ageratum conyzoides	Compositae	Used to cure malaria
52	Calamus derratus	Palmae	To make winnow
53	Raphia gracilis	Palmae	To make basket; for roofing houses
54	Eremospatha macrocarpa (**LC**)	Palmae	To make basket; for roofing houses
55	SamaEPA dinklagei	Leguminosae-Mimosioidae	To make tool handle; The leaf and bark used to cure tooth ache
56	Hibiscus sterculiifolius	Malvaceae	For making fishing nets 'baimbay'
57	Manotes expansa	Connaraceae	Used to cure diarrhoea and dysentery
58	Allophylus africanus	Sapindaceae	Relieves head ache by removing nasal mucus; bark removes worms
59	Smeathmannia pubescens	Passifloraceae	Crush leaf and add extract to wound to stop bleeding
60	Geophila hirsuta	Rubiaceae	To increase strength in weak children
61	Anthocleista vogelii	Loganiaceae	Used to cure malaria and stomach ache
62	Thaumatococcus damiellii	Maranthaceae	Used to cure knee pain; given to pregnant women for proper development of the foetus
63	Ficus exasperata	Rosaceae	Used as sand paper
64	Chrysobalanus obicularis	Moraceae	Timber
65	Hymenocardia lyrata	Euphorbiaceae	Relieves excessive menstruation
66	Carapa procera	Meliaceae	Seeds chewed to cure malaria and stomach ache
67	Prema hispida	Verbanaceae	To remove any evil food eaten
68	Phaulopsis inibricata	Acanthaceae	To remove any evil food eaten
69	Tarrietia utilis	Sterculiaceae	Timber
70	Melicia regia	Leguminosae-Caesalpinioidae	Timber

No.	Scientific name	Family	Use
71	Pentclethra macrophylla	Leguminosae-Mimosioidae Celastraceae	Seeds roasted and eaten
72	Clappertonia ficifolia	Tiliaceae	Used to cure malaria
73	Afzelia africana (**V**)	Leguminosae-Caesalpinioidae	Timber
74	Salacia senegalensis	Celastraceae	Fruits eaten

6.5.3.8 Vegetation Distribution and Ecological Implications

Vegetation distribution across the project communities suggests a high level of ecological fragmentation driven by shifting cultivation and shortened fallow periods. In many areas, fallow periods have been reduced to 2–4 years, leading to incomplete forest recovery and a dominance of weedy and fast-colonizing species. This affects both floristic diversity and ecological function, as mature forest species and their associated fauna are unable to reestablish.

Mangrove and swamp vegetation were prevalent in low-lying zones, with *Avicennia nitida* and *Rhizophora racemosa* being the dominant species. These wetlands play a vital role in water regulation, erosion control, and biodiversity support, and should be prioritized for conservation in project planning.

Overall, the vegetation within the SAPZ project sites reflects a landscape in ecological transition, shaped by subsistence agriculture, timber extraction, and human settlement. The project must consider this fragile ecological balance in its design and implementation to promote environmental sustainability.

6.5.4 Fauna

A dedicated fauna assessment was conducted to characterize the mammalian and reptilian diversity within the proposed SAPZ project area and its surrounding landscape in Port Loko District. The study employed a combination of direct transect surveys, camera trap deployment, and focus group interviews to identify species presence, relative abundance, and conservation status across different habitat types, including mangrove edges, inland valley swamps, secondary forest regrowth, and cultivated landscapes.

6.5.4.1 Mammals

Field surveys recorded a moderately diverse assemblage of terrestrial mammals, dominated by species of Least Concern according to the IUCN Red List. A total of 25 mammal species were identified through camera trap records, transect observations, and local knowledge, including key species such as the Brush-tailed Porcupine (*Atherurus africanus*), Maxwell's Duiker (*Philantomba maxwellii*), African Civet (*Civettictis civetta*), and Bushbuck (*Tragelaphus scriptus*). Camera traps captured up to seven species per site across five villages, with a notably high frequency of rodents and small ungulates.

The majority of mammals recorded were typical of disturbed and edge habitats, reflecting the anthropogenically altered state of the landscape. Larger and more elusive species such as Leopard (*Panthera pardus*), Tree Pangolin (*Phataginus tricuspis*), and Western Chimpanzee (*Pan troglodytes verus*) were only mentioned during community focus groups as species older hunters historically encountered or have knowledge of but haven't seen in the last few decades.

Hunting pressure remains high across all communities, with widespread use of snares, dogs, and occasionally firearms. Field teams recorded shell casings in several transects, indicating active use of guns despite community claims to the contrary. Local reliance on bushmeat was reported to be both subsistence and income-driven, contributing to the decline of sensitive and large-bodied species.

6.5.4.2 Reptiles

Reptile diversity was low, with only one species, the Nile Monitor (*Varanus niloticus*), confirmed through camera trap footage. This large-bodied, semi-aquatic reptile is widespread across West Africa and typically found in riparian and wetland habitats. Its presence aligns with the mosaic of swamp and riverine ecosystems in the study area. No threatened reptile species were recorded during the survey period.

6.5.4.3 Conservation Significance

All confirmed mammal and reptile species fall within the Least Concern category, with the exception of unconfirmed community reports of Vulnerable and Critically Endangered taxa. Notably, Black-and-white Colobus (*Colobus polykomos*), a Vulnerable species, was acoustically detected during transects but not visually confirmed. These findings suggest that while the current fauna assemblage reflects a landscape under anthropogenic pressure, remnant populations of conservation interest may persist in more intact habitat fragments.

Table 7: Fauna species identified by camera traps

Common Name	Scientific Name	IUCN Status	Camera Trap location	Period of deployment	Total number of animals
Grivet monkey	*(Cercopithecus aethiops*)	LC	Kathorma Robanna Mange	2days in each Community	2
Black Duiker	*(Cephalophus niger)*	LC			1
Gaint Forest Hog	*(Hylochoerus meinertzhageni)*	LC	Kathoma Robanna	2days in each Community	3
Giant Pouched Rat	*(Cricetomys spp.)*	LC	Mankara Mange	2days in each Community	16
Marsh Cane Rat	*(Thryonomisswinderianus)*	LC	Robanna Mankara	2days in each Community	2
Brush-tailed Porcupine	*(Atherurusafricanus)*	LC	Mange	2days in each Community	13
Striped Ground Squirrel	*(Xeruserythropus)*	LC	Rothum Robanna	2days in each Community	5
Fire-footed Rope Squirrel	*(Funisciuruspyrropus)*	LC	Kathoma Rothum	2days in each Community	4

Common Name	Scientific Name	IUCN Status	Camera Trap location	Period of deployment	Total number of animals
Bushbuck	*(Tragelaphusscriptus)*	LC	Mankara Mange	2days in each Community	4
Red River hog	*(Potamochoerus parcus*	LC	Robanna	2days in each Community	1
Maxwell's Duike	*(Varanusniloticus)*	LC	Mange Kathoma	2days in each Community	7
African Civet	*Civettictis civetta*	LC	Rothum	2days in each Community	4
Common genet	*Genetta genetta*	LC	Kathoma Mange Mankara	2days in each Community	6
Common Cusimanse	*(Galagosenegalensis)*	LC	Mankara Rothum	2days in each Community	2
Long-snouthed mongoose	*(Atherurusafricanus)*	LC	Robanna Mankara	2days in each Community	5
Tambourine Dove	*(Turturtympanistria)*	LC	Mange Robanna	2days in each Community	1
Blue-sported wood dove	*(Turturbrehmeri)*	LC	Rothum Mange Kathoma	2days in each Community	3

Figure 11: Giant Forest Hog (Hylochoerus meinertzhageni)

Figure 12: Bush Buck (Tragelaphusscriptus)

Figure 13: African Sivet (*Civettictis Civetta)*

Table 8: Visually confirmed fauna

Common Name	Scientific Name	IUCN Status	Survey Method (Camera trap or Transect)
Grivet Monkey	Cercopithecus aethiops	LC	Both
Black Duiker	Cephalophus niger	LC	Both
Giant Forest Hog	Hylochoerus meinertzhageni	LC	Camera Trap
Giant Pouched Rat	Cricetomys spp.	LC	Camera Trap
Marsh Cane Rat	Thryonomis swinderianus	LC	Camera Trap
Brush-tailed Porcupine	Atherurus africanus	LC	Both
Striped Ground Squirrel	Xerus erythropus	LC	Camera Trap
Fire-footed Rope Squirrel	Funisciurus pyrropus	LC	Camera Trap
Bushbuck	Tragelaphus scriptus	LC	Both
Red River Hog	Potamochoerus porcus	LC	Camera Trap
Maxwellâ€™s Duiker	Philantomba maxwellii	LC	Transect

African Civet	Civettictis civetta	LC	Camera Trap
Common Genet	Genetta genetta	LC	Both
Common Cusimanse	Crossarchus obscurus	LC	Both
Long-snouted Mongoose	Herpestes naso	LC	Transect
Lesser Spot-Nosed Monkey	Cercopithecus petaurista	LC	Transect
Senegal Galago	Galago senegalensis	LC	Transect
Campbellâ€™s Monkey	Cercopithecus campbelli	LC	Transect
Black and White Colobus	Colobus polykomos	VU	Transect
Tambourine Dove	Turtur tympanistria	LC	Camera Trap
Blue-spotted Wood Dove	Turtur brehmeri	LC	Camera Trap
Nile Monitor	Varanus niloticus	LC	Camera Trap

Table 9: Results of Focus Group Discussions

Common name	Scientific name	IUCN status
Grivet monkey	(Cercopithecus aethiops)	LC
Black Duiker	(*Cephalophus niger*)	LC
Gaint Forest Hog	(Hylochoerusmeinertzhageni)	LC
Giant Pouched Rat	(*Cricetomys* spp.)	LC
Marsh Cane Rat	(*Thryonomisswinderianus*)	LC
Brush-tailed Porcupine	(*Atherurusafricanus*)	LC
Striped Ground Squirrel	(*Xeruserythropus*)	LC
Fire-footed Rope Squirrel	(*Funisciuruspyrropus*)	LC
Bushbuck	(*Tragelaphusscriptus*)	LC
Red River hog	(*Potamochoerus parcus*)	LC
Maxwell's Duiker	(*Varanus niloticus*)	LC
Africa Civet	(*Civettictis civetta*)	LC
Common genet	*(Genetta genetta)*	LC
Common Cusimanse	*(Galago senegalensis)*	LC
Long-snouted mongoose	*(Atherurus africanus)*	LC
Campbell's Monkey	*(Cercopithecus (m) campbelli)*	LC
Potto	*(Perodicticus potto)*	LC
African clawless otter	*(Aonyx capensis)*	LC
Marsh mongoose	*(Atilax paludinosus)*	LC
Blotched genet	*(Genetta tigrine)*	LC
Leopard	*(Panthera pardus)*	VU
Tree pangolin	*(Phataginus tricuspis)*	VU
Rock hyrax	*(*Procavia capensis*)*	LC
Tree hyrax	*(Dendrohyrax sp.)*	LC
Western Chimpanzee	*(Pan troglodytes verus)*	CR
Water chevrotain	*(Hyemoschus aquaticus)*	LC

African Buffalo	*(Syncerus caffer)*	LC

6.5.5 Aquatic Fauna

6.5.5.1 Objectives and Context

The aquatic survey aimed to document fish diversity and characterize freshwater habitats within and around the SAPZ development areas. Data were collected via field observations, traditional fishing methods, and community-based knowledge.

6.5.5.2 Methodology

Sampling was conducted at upstream and downstream sites in four project communities using gill nets, traps, frame nets, and scoop nets. Focus Group Discussions and village interviews provided additional insight into species presence and fishing practices.

6.5.5.3 Results and Key Species

Sixteen fish and aquatic species were recorded. All were categorized as Least Concern by the IUCN (2017). No threatened aquatic species were identified. The rivers Rokel and Great Scarcies, along with seasonal streams and swamps, constitute the main aquatic habitats.

	Village	Kathoma	Mankara	Mange	Rothum
SPECIES	IUCN Status				
Petrocephalus pellegrini	Least Concern	+	+	-	-
Mormyrus spp.	Least Concern	+	+	-	-
Kribia spp	Least Concern	+	+	+	+
Coptodon louka	Least Concern	+	+	-	-
Hemichromis fasciatus	Least Concern	+	+	+	+
Epiplatys njalaensis	Least Concern	+	+	+	+
Pollimyrus spp	Least Concern	-	-	+	-
Mormyrops spp	Least Concern	-	-	+	-
Ctenopoma kingsleyae	Least Concern	-	-	+	-
Heterobranchius spp	Least Concern	+	+	+	-
Coptodon spp	Least Concern	+	+	+	+
Tilapia spp	Least Concern	+	+	+	+
Clarias buettikoferi	Least Concern	-	-	+	-
Mugil cephalus	Least Concern	+	+	-	-
Crabs	Least Concern	+	+	+	+

	Village	Kathoma	Mankara	Mange	Rothum
SPECIES	IUCN Status				
Macrobranchium rosenbergii	Least Concern	+	+	+	+

Local observations confirmed the presence of additional aquatic resources, including tortoise though it was not captured during the survey.

6.6 Noise Quality

Baseline noise monitoring was conducted at five locations across the project area in Port Loko District to establish existing ambient noise conditions. Monitoring was undertaken in in April 2025. These surveys followed established methodologies and were designed to characterize typical environmental noise levels across different settlements within the project footprint.

The measurements were collected using Class 1 sound level meters (Casella CEL 633A), compliant with British Standard EN 61672-1:2003. Noise data were recorded as five-minute averages of A-weighted broadband levels (LAeq) over a one-hour period at each location, with the equipment positioned 1.2 to 1.5 meters above ground and in free-field conditions (i.e., more than 3.5 meters from any sound reflecting surfaces).

The five monitoring locations, Kathoma, Mankara, Robanna, Mange, and Rothum are situated within or immediately adjacent to the project area. The summary results (see Table below) indicate that average LAeq values during daytime ranged between 47.2 dB(A) and 68.1 dB(A). The highest levels were recorded in Mange and Rothum, where proximity to road traffic and community activities contributed to elevated ambient noise. All measurements were taken on publicly accessible land and not in close proximity to residences, although they are indicative of general environmental exposure levels.

Table 10: Summary of Average Daytime Noise Levels

Location ID	Community	Average LAeq [dB(A)]
SPAZ 01	Kathoma	57.8
SPAZ 02	Mankara	48.1
SPAZ 03	Robanna	49.3
SPAZ 04	Mange	59.7
SPAZ 05	Rothum	63.1

Ambient noise in the project area is influenced by a combination of natural sounds, human activity, and vehicular traffic, particularly motorcycles and small generators. With the exception of Makkara and Robanna, the sites do not meet World Health Organization (WHO) daytime noise guideline thresholds for residential areas of 55dB. Similarly for the World Bank 2007 EHS Guidelines which specifies a limit of 55dB outdoors to prevent activity interference and annoyance.

6.7 Air Quality

Air quality within the project area was assessed through a targeted monitoring campaign conducted between April and May 2025. The objective was to establish representative baseline concentrations of key air pollutants and evaluate potential air quality risks related to current anthropogenic

activities. Five monitoring stations were established at Kathoma, Mankara, Robanna, Mange, and Rothum — all within or adjacent to project sites.

Measurements were conducted using Aeroqual Series 500 sensors and included the following parameters: $PM_{2.5}$, PM_{10}, NO_2, CO, SO_2, O_3, and Volatile Organic Compounds (VOCs). Meteorological data (temperature and relative humidity) were recorded concurrently to assist in interpreting pollutant dispersion and transport patterns. Each site was monitored over three consecutive days.

Table 11: Daily mean air quality

Locations	Day	Date dd/mm/yy	PM2.5, µg/m^3	PM10, µg/ m^3	NO2, µg/ m^3	CO, µg/ m^3	O3, µg/ m^3	SO2, µg/ m^3	VOC, mg/ m^3	Temperature ^{0}C
Standard Values			25	50	200	3,000	100	20	NA	NA
Kathoma	1	15/04/25	21.29	63.15	9.177	0.00	10.62	0.00	977	34.1
	2	16/04/25	33.56	68.72	34.810	172.31	34.67	0.00	478	35.1
	3	17/04/25	17.47	58.72	11.460	0.00	20.35	0.00	417	35.2
Mankara	1	18/04/25	19.77	63.12	6.308	0.00	26.42	0.00	385	32.3
	2	19/04/25	59.23	108.31	13.538	0.00	24.64	0.00	411	35.6
	3	20/04/25	35.15	77.54	9.346	227.28	21.29	0.00	378	33.0
Robanna	1	21/04/25	35.77	83.03	23.154	0.00	24.03	0.00	322	34.7
	2	22/04/25	31.12	87.04	7.615	86.54	15.46	0.00	312	35.1
	3	23/04/25	37.42	110.39	11.423	0.00	30.35	0.00	286	32.3
Mange	1	24/04/25	20.62	47.95	31.690	0.00	34.13	0.00	405	35.3
	2	25/04/25	8.58	18.46	23.920	0.00	22.42	0.00	467	35.9
	3	28/04/25	19.49	80.03	15.490	0.00	21.95	0.00	979	36.6
Rothum	1	29/04/25	48.19	70.50	15.850	0.00	23.54	0.00	752	35.9
	2	30/04/25	142.47	114.36	25.420	0.00	37.42	0.00	498	32.6
	3	01/05/25	14.31	29.59	4.540	0.00	22.89	0.00	656	36.5

Table 12: SAPZ Air Quality Baseline

Parameter	Units	WHO Daily Stan	Kathoma	Mankara	Robanna	Mange	Rothum

		dard Values					
PM2.5	µg/m³	25	24.11	38.05	34.77	16.23	**68.32**
PM10	µg/m³	50	63.53	82.99	93.49	48.81	**71.48**
NO2	µg/m³	200	18.48	9.73	14.06	23.7	**15.27**
CO	µg/m³	3000	57.44	75.76	28.85	0	**0**
O3	µg/m³	100	21.88	24.12	23.28	26.17	**27.95**
SO2	µg/m³	20	0	0	0	0	**0**
VOCs	mg/m³	NA	624	391	307	617	**635**
Temperature	**°C**	**NA**	**34.8**	**33.6**	**34**	**35.9**	**35**

6.7.1 Results

PM concentrations exceeded WHO guideline values (25 µg/m³ for $PM_{2.5}$ and 50 µg/m³ for PM_{10}) at four of the five sites. The highest average PM_{10} levels were recorded in Robanna (93.5 µg/m³) and Mankara (82.9 µg/m³), while $PM_{2.5}$ concentrations peaked in Rothum (68.3 µg/m³). These elevated levels are primarily attributed to road dust resuspension, domestic combustion, biomass burning, and emissions from small generators and motorcycles. As these assessments were done during the dry season elevated levels of dust are to be expected. All other parameters were within WHO standards.

6.8 Environmental Sensitivities and Climate Risks

Port Loko is vulnerable to climate-related hazards such as flooding, soil erosion, and coastal ecosystem loss. The district's coastal areas are at particular risk from sea-level rise and saltwater intrusion, which threaten mangrove habitats and coastal agriculture. Inland, heavy rainfall events can lead to flash flooding and damage to rural infrastructure, including feeder roads critical for agricultural marketing.

7 ANALYSIS OF ALTERNATIVES

The evaluation of project alternatives is an essential part of the Environmental and Social Impact Assessment (ESIA) process. It allows for a structured comparison of potential options to ensure that the selected approach is environmentally sustainable, technically feasible, economically viable, and socially inclusive. For the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project, the following alternatives were considered:

1. Alternative Location: Conducting Rice Production in Another District

An alternative to locating the SAPZ project in Port Loko District was assessed. While other districts such as Bombali, Bo, and Moyamba also possess agricultural potential, Port Loko was selected for several strategic, logistical, and agro-ecological reasons. The district is already an active rice-growing region with farmers experienced in lowland ecologies such as Boli lands and Inland Valley Swamps (IVS), providing a foundation for rapid scale-up as existing farms are available. But also that it will result in less pressure on green field areas as current farms are available for inclusion in the project compared to other districts where green field areas would have to be converted to rice production. The availability of rice farms for inclusion in the project and the project design which focuses on supporting famers in cultivating rice on their own lands to increase yields, economic displacement is avoided.

More importantly, Port Loko is geographically closest to the Agro-Industrial Hub (AIH) in Mambolo, Kambia District. This proximity ensures efficient logistics, reduces transportation costs and emissions, and minimizes post-harvest losses. Furthermore, a combined 136,000 hectares of arable land suitable for rice production have been identified across Port Loko and Kambia Districts. These lands form a contiguous rice-growing belt ideal for an integrated value chain approach. Relocating the project to another district would increase complexity, reduce operational efficiency, increase the likelihood of vehicle accidents and compromise the project's cluster-based model. Furthermore, there are existing government facilities in Port Loko District that will be used to house the ATC avoiding the need to take community land for the construction of the ATC.

2. "No Project" Scenario

Under the "no-project" scenario, existing farming practices would persist, characterized by low yields, inefficient post-harvest handling, poor market access, and environmental degradation due to unsustainable land use. While this option would avoid direct environmental and social impacts from new infrastructure, it would also forgo substantial benefits such as improved food security, job creation, rural infrastructure development, and income generation. National goals related to import substitution, agro-industrial development, and climate resilience would remain unmet. Additionally, there would be no strategic platform to engage private-sector actors or build adaptive capacity within rural communities.

3. Proposed Project Scenario (Preferred Option)

The selected alternative is the implementation of the SAPZ Project as currently designed. This option involves the development of climate-resilient rice production systems in Port Loko District, the establishment of an Agricultural Transformation Centre (ATC), and the linkage of these production sites with an Agro-Industrial Hub in Mambolo, Kambia District.

This scenario is strongly aligned with:

- **National policy frameworks** including the Feed Salone Strategy (2023–2028), the National Agricultural Transformation Programme (NAT), and the National Agricultural Investment Plan.
- **International commitments** under the African Development Bank's "Feed Africa" strategy and the 2023 Integrated Safeguards System (ISS).
- **Local development needs**, including employment, income diversification, and improved access to food and services.

From an environmental and social perspective, this option offers a comprehensive suite of mitigation and enhancement measures, including an Environmental and Social Management Plan (ESMP), Stakeholder Engagement Plan (SEP), and Grievance Redress Mechanism (GRM). The project integrates climate adaptation strategies, supports gender equality, and prioritizes the inclusion of youth and vulnerable populations.

Economically, the project will contribute to import substitution, increased rural incomes, and the creation of an enabling environment for private-sector investment in agro-processing. It will also unlock long-term multiplier effects in infrastructure development, transport services, and small enterprise growth.

The "do project" scenario therefore represents the most technically sound, socially inclusive, and environmentally sustainable option and is the preferred alternative.

8 PREDICTION AND EVALUATION OF IMPACTS

This section presents the prediction, evaluation, and mitigation of potential environmental and social impacts associated with the SAPZ Project, covering the Preconstruction, Construction, Operation and Maintenance, and Decommissioning phases. Impacts are assessed using established criteria i.e. magnitude, spatial distribution, duration, reversibility, and probability. Their overall significance is determined with reference to the baseline environmental and social sensitivity. Based on this evaluation, a suite of mitigation and enhancement measures is proposed to prevent, minimize, or offset negative impacts and to maximize the project's positive contributions. Each measure is linked to a responsible implementing entity and accompanied by monitoring indicators to support effective compliance, tracking, and adaptive management throughout the project lifecycle.

The methodology follows national regulatory frameworks and AfDB Integrated Safeguards System (ISS 2023) guidelines.

The identification, prediction, and evaluation of environmental and social impacts for the SAPZ Project were conducted using a combination of document review, field observations, stakeholder consultations, and expert judgment. Impacts were assessed based on their magnitude, extent, duration, reversibility, and likelihood, in line with national regulatory requirements and the African Development Bank's Integrated Safeguards System (ISS, 2023). The mitigation measures were developed following the mitigation hierarchy: avoidance, minimization, restoration, and offset; and are tailored to each phase of the project lifecycle.

8.1 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS BY PROJECT PHASE

8.1.1 Preconstruction Phase

During the Preconstruction Phase, the main activities involve famer identification, stakeholder engagement, and the site selection and design of Agricultural Transformation Centres (ATCs) and Aggregation Centres (ACs). The principal environmental and social risks at this stage are largely social in nature.

Negative impacts could include the risk of land disputes, particularly if customary land rights are not adequately recognized or if stakeholder engagement processes are not inclusive. There is also a risk of marginalization of vulnerable groups such as women, youth, and minority communities if they are not actively engaged in farmer registration and project participation processes. Farmer registration (farming operations) must respect customary laws, national legislation and AfDB safeguards. Choices for locations of farms must be made to limit environmental harm by avoiding ecologically sensitive areas.

On the positive side, proactive and inclusive stakeholder engagement can significantly enhance social acceptance, build trust, and foster a strong foundation for project success. Informed site selection, incorporating environmental and social screening, can also prevent future environmental harm by avoiding ecologically sensitive areas.

8.1.2 Construction Phase

The Construction Phase entails significant on-ground activities: land development, land preparation, farm track rehabilitation, and the construction of ATC and AC.

Environmental impacts are expected to include vegetation clearance, soil disturbance, alteration of drainage patterns, air and noise pollution from tractors and construction equipment, and sedimentation of nearby water bodies if erosion control measures are not implemented. The rehabilitation of farm tracks may increase dust levels, especially during the dry season. Open construction sites also raise the risk of accidents to both workers and nearby communities if occupational health and safety standards are not enforced.

Social impacts include employment opportunities for local communities, which can be a significant positive effect if local hiring and skill development are prioritized. However, construction may also cause temporary traffic disruptions and nuisance impacts such as noise and dust affecting nearby residents. Social issues will also include gender-based violence and child labour. The influx of workers especially men will increase the possibility of violence against women and girls; also, the contractors may be influenced to employ children below the age of 18. Other issues include the use of community WASH facilities by workers and the possibility of an increase in sexually transmitted diseases, the use of drugs including 'kush[8]', cannabis, etc., and theft within the community and the project area.

Without mitigation, the solid waste generated by construction activities, including packaging, plastics, and debris, can contribute to local environmental degradation.

8.1.3 Operation and Maintenance Phase

The Operation and Maintenance Phase marks the core functional life of the project and introduces a wide array of potential environmental and social impacts.

Agricultural activities, such as rice planting and harvesting, may lead to soil degradation if intensive monocropping or unsustainable farming practices are adopted. The use of agrochemicals (pesticides, herbicides, and fertilizers) poses risks of surface water and groundwater pollution, bioaccumulation in aquatic systems, and health risks to farmers and nearby residents if proper application and storage measures are not enforced.

Small-scale irrigation schemes, while beneficial in extending production cycles, may lead to over-abstraction of water resources, waterlogging, or salinization if water use is not properly monitored and regulated.

Operations at ATC and AC will generate agro-processing residues, packaging waste, and emissions from energy consumption. Inadequate waste management could attract vermin, contaminate soil and water, and cause localized health risks. Transportation of produce increases emissions and tranasport related acidents, particularly when traffic volumes spike during harvest seasons.

Socially, this phase will generate important positive impacts, including improved farmer incomes, value addition in the agricultural chain, rural employment, and strengthening of cooperatives and farmer organizations.

[8] Chemical testing of kush found that over 50 per cent of samples contain nitazenes, a very addictive and deadly synthetic opioid comparable to fentanyl, while the other half contains synthetic cannabinoids.

8.1.4 Decommissioning and Restoration Phase

When facilities such as the ATC and AC reach the end of their useful life or in the event of premature closure, the Decommissioning Phase will be implemented.

Environmental risks include dust emissions, noise, and soil contamination from demolition debris if materials are not properly handled. Improper disposal of demolition waste can degrade soil and water quality. There is also the potential for temporary disruption to communities living nearby due to demolition activities.

Positive impacts are associated with site restoration, which offers an opportunity to rehabilitate soils, replant native vegetation, and enhance biodiversity. If managed well, restoration can contribute to reversing some of the environmental impacts accrued during the operational life of the project.

8.1.5 Cumulative and Indirect Impacts

Beyond the direct impacts generated by project activities, the SAPZ Project has the potential to contribute to cumulative and indirect environmental and social effects at the broader district and regional levels.

These cumulative and indirect impacts arise from the interaction between the project's activities and other existing or planned developments within Port Loko District, including agricultural expansion, infrastructure development, and socio-economic transformation.

8.1.5.1 Cumulative Impacts

Cumulative impacts refer to impacts that, when considered together with those from other projects or background trends, result in a more significant effect on the environment or society than the SAPZ Project alone would cause.

Key cumulative impacts anticipated include:

- **Soil fertility decline and water resource stress:**
  The intensification of agriculture through expanded rice production, when combined with other farming activities in the district, may lead to a cumulative reduction in soil fertility over time. Continuous cultivation without sufficient soil conservation measures could deplete soil nutrients, reduce agricultural productivity, and heighten vulnerability to erosion. Similarly, increased abstraction of water for small-scale irrigation, coupled with demands from other agricultural users, could place stress on local aquifers and surface water systems, particularly during dry seasons.
- **Deterioration of regional air quality and road safety risks:**
  The movement of agricultural produce to aggregation centres and hubs will increase vehicular traffic volumes, particularly during peak harvest seasons. Combined with traffic from other ongoing economic activities (e.g., mining, trade, construction), there is potential for cumulative impacts on regional air quality due to emissions from poorly maintained vehicles.
  Additionally, the cumulative increase in traffic volume could elevate the risk of road accidents, placing a strain on local health services and affecting community safety.
- **Progressive loss of natural habitats:**
  As land development and agricultural expansion continue district-wide, there is a risk of gradual, cumulative conversion of natural ecosystems, including wetlands, woodlands, and secondary forests, into cultivated areas. Without adequate environmental planning and enforcement of land use regulations, this trend could significantly diminish biodiversity, ecosystem services (e.g., flood regulation, carbon storage), and resilience to climate change.

8.1.5.2 Indirect Impacts

Indirect impacts are those that are set into motion by the project but occur at a later time or at a distance from the primary project activities.

Key anticipated indirect impacts include:

- **Rural-to-urban migration dynamics:**
  The establishment of ATCs and ACs, and associated increases in rural employment and commercial opportunities, may attract people from surrounding rural areas seeking jobs and services.
  While this migration could stimulate local economic growth, it also carries risks such as the formation of informal settlements, increased demand for public services (e.g., health, education, sanitation), and pressure on land resources if not proactively managed through urban planning.
- **Land value escalation and potential land tenure conflicts:**
  Improved road access, new agricultural infrastructure, and the commercialization of rice production could lead to rising land values around project areas.
  This could generate competition for land between investors, landowners, farmers, and traditional users. In the absence of clear land rights documentation and dispute resolution mechanisms, there is potential for land tenure insecurity, displacement, and social conflict, particularly for vulnerable groups such as women and smallholder farmers with customary land rights.

The SAPZ project is expected to generate significant socio-economic benefits, particularly in enhancing food security, rural incomes, and agribusiness development in Port Loko District. However, it also presents environmental and social risks that require robust management. Careful application of mitigation measures, participatory stakeholder engagement, and adaptive management will be critical to ensuring that negative impacts are minimized, and positive impacts are maximized.

8.2 IMPACT ASSESSMENT METHODOLOGY

The following criteria have been used in evaluating each identified impact:

Table 13: Description/determination of impact characteristics

Magnitude is the extent and severity of how the impact affects the baseline condition	**Duration** is the length of time the impact will affect the receptor.	**Scale/Spatial distribution** is the size of the impact and proportional impacts on the receptor.	**Probability** is the likelihood of the impact occurring.
Positive (3)	Temporary (1)	Site only (1)	Improbable (1)
Negative negligible (2)	Short Term (2)	Local (2)	Low Probability (2)
Negative minor (4)	Medium Term (3)	Regional (3)	Medium Probability (3)
Negative moderate (6)	Long Term (4)	National (4)	High Probability (4)
Negative Major (10)	Permanent (5)	International (5)	Definitely/Unknown (5)

To determine the impact significance, the formula below is used:

Impact significance = (Magnitude + Duration + Spatial Distribution) × Probability

The impact significance is classed as follows:

- Major negative impacts are red; (50 – 100)
- Moderate negative impacts are orange; (30 to 49)
- Minor negative impacts are light orange; (20 to 29)
- Negligible are yellow; (0 to 19)
- Positive in green. (5 to 65)

Impact Significance Rating Definitions

To assess the potential environmental and social impacts of the SAPZ Project, a significance rating system was applied to evaluate the magnitude, duration, extent, reversibility, and likelihood of each identified impact. Based on a scoring matrix, impacts were categorized into the following significance levels:

Major Negative Impacts (Red: 50–100)

These are high-severity impacts that are likely to result in irreversible or long-term environmental or social harm if unmitigated. They often affect sensitive receptors, critical habitats, or vulnerable populations, and typically require substantial mitigation or redesign of project components to reduce their significance.

Moderate Negative Impacts (Orange: 30–49)

These impacts are significant but typically localized and of moderate duration. While not catastrophic, they may cause measurable environmental or social change and require targeted mitigation to ensure compliance with regulatory or safeguard requirements.

Minor Negative Impacts (Light Orange: 20–29)

These are low-severity impacts with limited spatial or temporal extent. They are generally reversible and can be effectively managed with standard mitigation measures or best practice environmental management procedures.

Negligible Impacts (Yellow: 0–19)

These impacts are not expected to result in meaningful environmental or social change. They are minor in scope and do not require specific mitigation beyond adherence to general environmental good practice.

Positive Impacts (Green: +5 to +65)

These are beneficial outcomes resulting from project activities, such as employment creation, improved infrastructure, ecosystem restoration, or enhanced access to services. Positive impacts are scored separately and may be enhanced through complementary project actions or design modifications.

8.3 IMPACT ASSESSMENT TABLE

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
Preconstruction Phase							
Farm identification and stakeholder engagement	Disputes / grievances arising from inadequate stakeholder engagement to secure the buy-in of approximately 2,000 farmers the project intends to support	Project communities	6 Moderate	2 Local	4 Long Term	4 High	48 Moderate negative
	Disputes related to the selection process of approximately 2,000 targeted farmers	Project Communities	6 Major	3 Regional	4 Long Term	4 High	52 Major negative
	Encroachment on or destruction of sensitive ecosystems caused by construction of project infrastructure or expansion of farming activities	Receiving environment: soils, rivers, swamps.	6 Major	3 Regional	4 Long Term	4 High	52 Major negative
	Exclusion of vulnerable groups from project benefits and decision-making processes	Vulnerable members of project communities	10 Major	2 Local	4 Long Term	4 High	64 Major negative
	Strengthened community engagement leading to improved participation, trust, and ownership of project activities (positive)	Host communities	3 Positive	2 Local	4 Long Term	3 Moderate	27 Positive
Construction Phase							
Land development and preparation; Construction of AIH & ATC/AC; Farm track spot improvement;	Increased community exposure to physical hazards associated with project site activities such as land preparation, rehabilitation of ATC and farm track spot improvements	Community members, road users	6 Moderate	2 Local	2 Short term	4 High	40 Moderate
Wharf construction and rehabilitation	Vegetation clearance and resulting localized soil erosion due to land preparation and construction activities	Environment: flora and fauna	6 Moderate	2 Local	4 Long term	4 High	48 Moderate

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
	Sedimentation of watercourses resulting from soil erosion and runoff during land clearing and construction activities	Environment: fish, aquatic organisms	6 Moderate	3 Regional	3 Medium term	3 Medium	36 Moderate
	Occupational health and safety impacts associated with exposure to dust, noise, vibration, hot work, site traffic, poor ergonomics, extreme temperatures, hazardous materials, and inadequate working conditions	Construction workers	10 Major	1 Site	4 Long Term	3 Medium	45 Moderate
	Increased local employment opportunities resulting from project activities (positive)	Community members, people from the district	3 Positive	3 Regional	2 Short Term	4 High	32 Postive
	Discrimination in employment practices, particularly against women and persons with disabilities during employment of workers (estimated at 150 persons). Labour rights violations, including child and forced labour, delayed or partial payment of wages within project-related activities may lead to worker grievances and workplace conflict	Workers, community members and their children	6 Moderate	3 Regional	2 Short Term	4 High	44 Moderate
Farm track spot improvements	Disruption of local traffic patterns and increased incidences of road accidents due to farm track spot improvements	Road users	4 Minor	2 Local	2 Short Term	3 Medium	24 Minor
All construction activities	Increased incidences of gender-based violence (GBV), sexual exploitation and abuse (SEA), and sexual harassment (SH) linked to construction-related activities and labour influx	Community members and workers	10 Major	2 Local	4 Long Term	3 Medium	48 Moderate
	Transmission of communicable diseases (e.g., STIs, HIV/AIDS, MPOX) between project workers and surrounding communities	Community members	6 Moderate	3 Regional	3 Medium term	3 Medium	36 Moderate
	Contamination of soil, surface water, and groundwater resulting from improper handling, storage, transportation, and disposal of waste, lubricants, fuels, black and greywater, and accidental chemical or oil spills	Community members	6 Moderate	3 Regional	3 Medium term	3 Medium	36 Moderate

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
Rehabilitation or construction of wharf facilities	Localized erosion and habitat disturbance resulting from wharf rehabilitation or construction	Wild life inhabiting riparian zones and aqua fauna	6 Moderate	2 Local	3 Medium	4 High	36 Moderate
Operation and Maintenance Phase							
Farming operations (planting, harvesting)	Degradation of soil fertility caused by the overuse or improper application of fertilizers Loss of biodiversity resulting from the excessive or inappropriate use of pesticides	Soils and receiving environment	10 Major	3 Regional	4 Long term	3 Medium	51 Major
Agrochemical use	Pollution of water bodies from fertilizer and pesticide runoff, leading to eutrophication, death of aquatic organisms, and overall degradation of water quality	Water bodies in vicinity of farming operation Groundwater	10 Major	3 Regional	3 Long term	3 Medium	51 Major
Small-scale irrigation	Over-abstraction of water resources leading to a decline in groundwater tables and reduced downstream flow volumes in surface water bodies		10 Major	3 Regional	4 Long term	2 Low	34 Moderate
ATC and AC operations	Environmental degradation resulting from improper disposal of rice husk and other waste products generated during rice production	Vicinity of ATC/AC, communities	6 Moderate	2 Local	4 Long term	3 Medium	36 Moderate
Transportation of produce from Farm to ATC and ATC to AIH.	Increase in road traffic accidents and vehicular emissions due to elevated transport activities associated with the project	Rural road network	4 Minor	3 Regional	4 Long term	3 Medium	33 Moderate
Operations and Maintenance	Occupational health and safety impacts arising from the use of heavy equipment during planting, harvesting, and primary processing activities at Aggregation and Transformation Centres (ATCs)	Farm workers	10 Major	1 Site	4 Long Term	3 Medium	45 Moderate
	Improved household and community revenue resulting from increased rice yields in participating communities	Community members,	3 Positive	3 Regional	4	4 High	40 Positive

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
		land owners, farmer			Long Term		
ATC and Tractor operations	Discrimination in employment practices, particularly against women and persons with disabilities Labour rights violations, including child and forced labour, within project-related activities Delayed or partial payment of wages may lead to worker grievances and workplace conflict	Workers, community members and their children	Moderate	Regional	Long term	High	52 Major
	Contamination of soil and both surface and groundwater due to improper disposal of fuel and lubricant waste	Surrounding environment – soils and water courses	Minor	Local	Long term	Medium	30 Moderate
River Transportation to and from processing centres	Water pollution and aquatic disturbance during riverine paddy transport	Aquatic fauna and rivers	4 Minor	2 Local	4 Long term	3 Medium	30 Moderate
	Increase in boat related accidents due to unsafe riverine transport practices	Water users	10 Major	3 Regional	4 Long Term	2 Low	34
Decommissioning and Restoration Phase							
Demolition of ATC/AC	Generation of noise, dust, and solid waste, along with occupational health and safety concerns during demolition of facilities	Workers, surrounding environment	Minor	Site	Short term	Medium	21 Minor
	Restoration of natural vegetation to project areas		Positive	Site	Long term	High	16 Positive

9 ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)

9.1 OBJECTIVES

The primary objective of this Environmental and Social Management Plan (ESMP) is to ensure that all identified environmental and social (E&S) risks and impacts associated with the SAPZ Project are effectively managed throughout the project lifecycle compassing the preconstruction, construction, operation and maintenance, and decommissioning phases. Specifically, the ESMP aims to:

- Ensure compliance with Sierra Leone's national environmental legislation and regulations, particularly those enforced by the Environment Protection Agency (EPA-SL), as well as the African Development Bank's Integrated Safeguards System (ISS).
- Prevent, minimize, mitigate, or offset adverse environmental and social impacts associated with project activities.
- Enhance positive project outcomes through the adoption of good international industry practices (GIIP) in environmental and social performance.
- Define clear institutional responsibilities, monitoring frameworks, capacity-building needs, and budgeting provisions for effective E&S management.
- Establish mechanisms for stakeholder engagement, grievance resolution, and adaptive management to respond to emerging risks or unforeseen circumstances.
- Provide a practical tool for contractors, supervising consultants, and the Project Implementation Unit (PIU) to manage E&S issues on-site and integrate environmental and social considerations into routine project decision-making and operations.

9.2 SCOPE

The scope of the ESMP covers all components and sites of the SAPZ Project in Port Loko District, including:

- Production Support Zones (e.g. irrigated and rainfed rice cultivation areas)
- Agricultural Transformation Centres and/or Aggregation Centres (ATC/AC)
- Feeder roads and transport corridors
- Associated infrastructure (e.g., storage facilities, water abstraction systems, sanitation infrastructure, and power supply)

The ESMP addresses both direct and indirect E&S impacts and outlines:

- Mitigation measures for all significant adverse impacts identified in the ESIA.
- Environmental and social management procedures for contractors and implementing partners.
- Monitoring and evaluation indicators to track compliance and performance.
- Roles and responsibilities for all actors involved in ESMP implementation, including reporting lines and coordination mechanisms.

- Capacity building and training requirements to ensure effective ESMP delivery.
- Cost estimates and budget allocations required to operationalize the ESMP actions.

This ESMP serves as a living document to be updated as needed during implementation, particularly as new information becomes available or project activities evolve.

9.3 ESMP TABLE

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Preconstruction Phase							
Farm identification and stakeholder engagement	Disputes / grievances arising from inadequate stakeholder engagement to secure the buy-in of approximately 2,000 farmers the project intends to support Disputes related to the selection process of approximately 2,000 targeted farmers Exclusion of vulnerable groups from project benefits and decision-making processes	• Conduct transparent stakeholder consultations; • Prioritise inclusion of women, youth, and vulnerable groups; • Apply grievance redress mechanisms • Implement stakeholder engagement plan • Focus on existing farms for inclusion into project	• Records of stakeholder consultation • Number of vulnerable groups / persons engaged • Grievance logs: number of grievances received vs resolved	Monthly E&S reports submitted to AfDB Environmental and Social Performance Audits AfDB Implementation Support Missions	Implementation completed prior to any construction and land preparation activities	PIU, Ministry of Agriculture, Ministry of Lands, Housing and Country Planning	$20,000 NLe460,000
	Encroachment on or destruction of sensitive ecosystems caused by construction of project infrastructure or expansion of farming activities	• Conduct environmental screening for all site options. • Avoid critical / pristine habitats such as green field IVS • Avoid siting infrastructure in areas with intact riparian or swamp forests • Do not convert intact riparian or swamp forests to agricultural land • Incorporate agroforestry or buffer reforestation	• Site screening records	Monthly E&S reports submitted to AfDB Environmental and Social Performance Audits AfDB Supervision Missions	Site screening completed prior to inclusion of farms in SAPZ interventions	PIU, NPAA	$15,000 NLe345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		components to enhance ecological resilience. • Promote community-led forest management, particularly in areas of secondary regrowth. • Establish nursery programs for replanting vulnerable species and restoring degraded habitats.					
	Exclusion of vulnerable groups from project benefits and decision-making processes	• Implement SEP and have functional GRM • Prioritise inclusion of vulnerable groups during stakeholder engagement • Organise focus groups or additional meetings focusing on vulnerable groups	• Records of meeting with vulnerable groups • Grievance logs: number of grievances received vs resolved	Monthly reports to AfDB AfDB Supervision missions Environmental and Social Performance Audits	Vulnerable groups engaged prior to completion of land identification exercises	PIU	$5,000 NLe115,000
	Strengthened community engagement leading to improved participation, trust, and ownership of project activities (positive)	• Implement SEP • Sincere engagement with host communities • Keep communities engaged and informed • Transparent process for the selection of sites. • Respect local customs and leadership • Ensure communities understand their rights	• Grievance logs: number of grievances received vs resolved • Records of stakeholder engagement.	AfDB Supervision missions Environmental and Social Performance Audits	N/A	PIU	Costs incorporated from the other stakeholder consultation exercises during this project phase.
Construction Phase			•				
Land development and preparation; Construction of ATC/AC; Farm track spot improvement;	Air pollution, noise, and vibration generated by the operation of farm tractors, light machinery, vehicles, and equipment (tractors,	• Ensure strict enforcement of on-site and off-site speed limit regulations. • Provide the workforce with minimum Personal	• Air Quality: PM2.5 & PM10 levels , SO2, NO2, VOCs	Air quality and noise level reports incorporated into monthly reporting to AfDB	Quarterly air quality surveys during construction, land preparation and	PIU and contractor	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Wharf construction and rehabilitation	generators, trucks) during land preparation and farm track spot improvements in excess of WHO standards (Air and noise quality) and current baseline (air quality)	Protective Equipment (PPE) as required. • Conduct periodic monitoring or when complaints arise. • Ensure vehicle idling time shall be minimised. • Sensitise drivers to avoid unnecessary revving of vehicle (heavy and light) engines at loading/offloading points and parking areas and to switch off or keep vehicle engines at these points. • Undertake activities that may be regarded as noisy during normal working hours. • High-level equipment and machinery maintenance to reduce noise, vibration, and emission. • Fit machinery and motorised equipment with exhaust mufflers/silencers to minimise noise generation. • Sensitise construction drivers to avoid gunning of vehicle engines or hooting, especially when passing through sensitive areas such as schools and hospitals. • Speed Limit enforced to minimise dust generation on and off-site.	• Noise Levels: dB • PPE Checklist • Daily toolbox talk • Inpection reports for equipment and machinery maintenance		feeder road rehabilitation		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Avoid excavation works in extremely dry and windy weather • Investigation of the complaints or significant changes in air quality to establish the root cause.					
	Vegetation clearance and resulting soil erosion due to land preparation	• Limit land clearance to essential areas; apply erosion control measures (e.g., silt fences, terracing) • The Contractor will draw up a plan for approval by the PIU setting out what tress will need to be removed. This plan must be justified based on the footprint for construction and related concerns. • The contractor should take precautions to avoid cutting/damage to trees and vegetation outside the designs •	• Prescence of cleared land that is not utilised •	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	Clearance plan to be approved by PIU prior to commencement vegetation clearance Throughout vegetations clearance Replanting efforts if any to be done within 6 months of economic tree removal	PIU, Contractor	$8,000 NLe184,000
	Sedimentation of watercourses resulting from soil erosion and runoff during land clearing and construction activities	• Limit land clearance to essential areas only • Apply erosion control measures as appropriate e.g. silt fences, terracing, silt traps etc to reduce risk of turbid water reporting directly to river courses • Maintain vegetated buffer areas between excavated / tilled areas and rivers	• Prescence of cleared and unutilised land • Prescence of erosion control measures where necessary • Vegetation buffer maintained	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	Clearance plan to be approved by PIU prior to commencement vegetation clearance Throughout vegetations clearance Replanting efforts if any to be done within 6 months of economic tree removal	PIU, Contractor Implementation construction and land clearance	No additional cost

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
			between project areas and rivers . Note: *On preexisting community farms this buffer may no longer exist*				
	Occupational health and safety impacts associated with exposure to dust, noise, vibration, hot work, site traffic, poor ergonomics, extreme temperatures, hazardous materials, and inadequate working conditions	• The Contractor should recruit an occupational safety, health and environment officer to manage, document and report all health, safety, and environment protection issues (incidents and accidents) on site. • The requirement to adhere to OHS mitigation and this ESMP in general should be embedded in the relevant contract with the contractor and include financial penalties. • Contractor to develop a CESMP in compliance with this ESMP with a TOR including but not limited to the points in Annex 2: Contractors CESMP – Required Content • Incorporate OHS in C-ESMP to be approved by the PCU • The contractor's OHS officer shall conduct weekly toolbox talks for workers on the health and safety requirements of the different tasks included in	• Occupational Safety, Health and Environment E&S Officer employed by the contractor • Approved CESMP • Incident and accident statistics • HSE Training records (inductions, tool box talks) • Gender segregated toilet facilities provided for staff	Contractor reports to the PIU Monthly PIU reporting to AfDB AfDB supervision meetings Environmental and Social Performance Audits	CESMP drafted and approved prior to start of construction activities	Contractor Throughout all construction work	$10,000 NLe 230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		the assignment and sensitize workers on the spread of infectious diseases. • Prepare and install warning and safety signs in work zones. • Provide hearing protection where necessary (when sound level over 8 hours reaches 85 dB(A)). • To reduce the risk of vibration-related injuries, choose the appropriate equipment and use vibration-dampening pads or devices. • Monitor weather forecasts for outdoor work and adjust work and rest periods to ensure employees are safe and comfortable. • Provide temporary shelters or rest areas for the workforce. • Ensure that construction workers have an adequate drinking water supply. • Provide training and licencing for industrial vehicle operators to ensure safe vehicle operation and establish clear rules and procedures for vehicle use. • Use mechanical assists to reduce the physical					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		demands of lifting and holding materials and tools. • Implement quality control and maintenance programs to ensure equipment is in good working order and reduce the risk of accidents due to equipment failure. • Ensure that provisions for reporting incidents, accidents, and dangerous occurrences during construction using prescribed forms are in place. • Ensure that workers undergo safety inductions. • Provide appropriate signage at the site and ensure all workers undergo training on the meaning and importance of each signage. • Adequate and proper fencing of the worksite and controlled access to only authorized personnel. • Provision of adequate and appropriate personal protective equipment (PPEs) to all workers and official site visitors. • A well-stocked first aid box, which is readily available and accessible, should be provided on the site premises.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Contractor to sign contract with nearby hospital / clinic etc to provide medical referral services for staff if required • Emergency telephone numbers, such as those for the ambulance and fire department, should be adequately and prominently displayed. • Firefighting equipment such as fire extinguishers be provided at strategic locations such as stores and hot work areas. • Signs such as "NO SMOKING" must be prominently displayed within the sites, especially in parts where flammable materials are stored. • Enforce the strict adherence to standard operating procedure for all work • The Contractor shall hire fit and healthy workers, ensure their safety and health, and confirm no harm caused at the end of the project. • Guard machines and equipment to protect workers from injury. • Provide ear protection such as earmuffs for workers in noisy and vibrating areas.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Provide workers with awareness training on preventing infection from diseases such as influenza, typhoid, and sexually transmitted diseases. • Ensure well maintained and clean gender segregated sanitation facilities, including handwashing stations, are available on site. Facilities to include constant running water. • Conduct awareness programs to educate the workforce on their rights, available support services, and reporting mechanisms.					
	Increased community exposure to physical hazards associated with project site activities such as land preparation, rehabilitation of ATC and farm track spot improvements	• Undertake safety precautions to address safety hazards for nearby community members • The sites shall remain fenced at all times. • Restrict access to work sites • Place flagmen to direct light, heavy vehicles, and machinery entry to the site to protect community members using roads near the construction site. • Coordinate with the relevant authority for potential traffic issues. • Schedule noisy activities during acceptable hours and	• Incident / accident statistics • Grievance logs	Community interviews / engagements during AfDB supervision missions Environmental and Social Performance Audits Monthly reports to AfDB	Throughout construction activities	Contractor Implementation throughout construction and land preparation processes	$5,000 NLe115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		inform nearby community members. • Provide clear communication to the nearby communities about construction activities, potential risks, and safety precautions.					
	Increased local employment opportunities resulting from project activities (positive)	• The Contractor prioritise hiring unskilled/semi-skilled labour from the surrounding area where possible to give the maximum benefit to the local community.	• Number of contractor staff from surrounding area	Contractor employment records Monthly report to AfDB	Throughout construction process	PIU, Contractor	No additional costs
Civil works	Discrimination in employment practices, particularly against women and persons with disabilities during employment of workers (estimated at 100 persons). Labour rights violations, including child and forced labour, delayed or partial payment of wages within project-related activities may lead to worker grievances and workplace conflict	The SAPZ Project will implement a Labor Management Plan (see Annex 4: Labour Management Plan (LMP) for the SAPZ Project) to include the following measures: • Contractor to develop CESMP for approval by the PIU • Contractor to ensure workers' contracts stipulate the expected remunerations, duration, period, and working conditions. Contractor to ensure that workers are aware of the details of their contracts. • All contracts and salaries to meeting legal requirements	• GRM Logs • Approved CESMP • Number of signed CoC • Number of signed contracts	Visual inspections of signed CoC and employment contracts Engagements with contractor's staff Monthly labour report submitted to the PIU by the contractor	Throughout construction	PIU Ministry of labour	No additional cost

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		for salary, hours of work, status, etc • Ensure the workers' payment rates meet the national standards for each job category/type. • Ensure Provision of timely payment. • Ensure Provision of Workers' Grievance Redress Mechanism (GRM). • The Contractor should develop and implement clear equal employment opportunity conditions that explicitly prohibit discrimination based on gender or disability. • Contractor to meet minimum 30% requirement of female employment as stipulated by national legislation • The Contractor will conduct regular training sessions on diversity, inclusion, and preventing discrimination for all employees, supervisors, and managers. • Incorporate universal design principles in construction to ensure accessibility for persons with disabilities. • All Contractor workers are to sign CoCs prior to starting work. Stipulations of CoC to					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		be explained to workers especially illiterate workers. . • Develop and enforce a code of conduct prohibiting child and forced labour.as part of CESMP • Implement controls throughout construction work to ensure that child and forced labour are not being used. • Report and remediate any violations of their code of conduct. • Provide education and awareness training to all employees, suppliers, and sub-contractors.					
Farm track spot improvements	Disruption of local traffic patterns and increased incidences of road accidents due rehabilitation of feeder roads	• Traffic management measures to be integrated into C-ESMP • Undertake safety precautions to address safety hazards for the nearby residents, including safety/warning signage, safety barriers around the construction site, and safe driving practices. • Informing the public about construction risks. • Minimise vehicle movements. • Discourage overloading. • Ensure compliance with all driving safety regulations	• Number of traffic incidents attributed to Project • Number of grievances related to rehabilitation works	Reports from or via engagement with local unit command (Sierra Leone Police) Grievance logs	Traffic management measures to be included in the C-ESMP and must be approved before start of road rehabilitation Mitigation methods to be implemented throughout road rehabilitation	Contractor & PIU	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		and penalise drivers working for the project who do not follow them. • Conduct driving safety awareness campaigns. • Do not tolerate dangerous driving or even minor traffic infringement. • Enforce strict adherence to the speed limit for all construction vehicles (light and heavy) on and off-site. • Undertake community safety awareness campaigns and encourage community members to report drivers not observing traffic rules. • Coordinate with the Sierra Leone Police and Road Safety Corps as and when necessary					
	Increased risk of gender-based violence (GBV), sexual exploitation and abuse (SEA), and sexual harassment (SH) linked to construction-related activities and labour influx	• Conduct awareness programs to educate the workforce on their rights, available support services, and reporting mechanisms. • Provide education and awareness training to workers to prevent GBV/SEA/SH incidents. • Workers to sign the Code of Conduct. • Implement and enforce strict codes of conduct for the workforce, emphasizing	• Number of workers trained on GBV/SH/SEA • Number of complaints related to GBV/SH/SEA and status of resolution • Number of signed CoC	Grievance logs Monthly reports to AfDB AfDB Supervision missions	Implementation to start with signing of CoC by all contractor staff on signing of employment contracts. Implementation throughout construction phase.	Contractor & PIU	$5,000 NLe 115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		zero tolerance for sexual harassment and abuse. • Provide GBV awareness sessions for the community. • Conduct community awareness programs to educate the project community on their rights, available support services, and reporting mechanisms.	• Number of periodic sensitization and reports on GBV/SEA/SH				
	Transmission of communicable diseases (e.g., STIs, HIV/AIDS, MPOX) between project workers and surrounding communities	• Contractor to develop training plan to generate community awareness on the spread of communicable diseases • Community awareness sessions on infectious diseases. • Provide awareness training to the community on preventing infection from common and emerging communicable diseases. • Provide adequate WASH facilities for site staff	• Number of community members trained on communicable diseases	Monthly reports to AfDB	Implementation to start when contractor introduced to the community i.e. awareness raising on communicable diseases and risks associated with influx of workers.	PIU, Contractor	$2,000 NLE46,000
	Contamination of soil, surface water, and groundwater resulting from improper handling, storage, transportation, and disposal of waste, lubricants, fuels, black and greywater, and accidental chemical or oil spills .	• Implement waste segregation to prevent mixing hazardous and non-hazardous wastes by placing small and medium-sized bins at selected points for immediate temporary storage of collected wastes. • Specific areas on site shall be designated for temporarily managing the	The following parameters: Hardness (Total, Calcium, Magnesium) Chloride (Cl^-) Nitrate (NO_3^-)	Water quality results incorporated into monthly reports submitted to the AfDB	Bi-annually starting during construction and continuing throughout construction Quarterly water testing throughout construction	Contractor, PIU	Water Quality Tests $5,000 Nle115,000 Waste Management $6,000 Nle138,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		general domestic and construction d waste. • Substitute raw materials or inputs with less hazardous or toxic materials. • Institute good housekeeping and operating practices, including inventory control, to reduce the amount of waste that may prevent contaminated soil and waste from eroding into receiving waters. • Use building materials with minimal or no packaging to avoid generating excessive packaging waste. • Use construction materials with recycled content whenever possible and in compliance with accepted standards. • Contract a private waste disposal company to transport and dispose of solid waste from the site. • Provide adequate personal protective equipment to all workers. • Create awareness amongst the workers on the proper and safe disposal of waste and recycling of solid waste. • Fuel and lubricant leaks from vehicles and other	Nitrite (NO_2^-) Ammonia (NH_3/NH_4^+) Phosphate (PO_4^{3-}) Sulphate (SO_4^{2-}) Fluoride (F^-) Iron (Fe) Manganese (Mn) Sodium (Na^+) Potassium (K^+) Heavy Metals (e.g., Lead, Arsenic, Cadmium, Mercury, Chromium, Zinc) MOU/Agreement signed with EPA licensed waste contractor Waste management grievances tracked in the grievance register				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		machinery shall be immediately rectified. • Any contaminated waste stockpiled separately and disposed by an EPA licensed waste contractor. • Ensure mechanisms exist for the community to raise any complaints or feedback concerning the waste disposal by the contractor. • Do not dispose of anything in nearby streams. • Monitor downstream water quality routinely to ensure they stay within the established baseline where appropriate. • Make temporary drains as necessary to avoid waterlogging or erosion. These must be adequate for accumulated runoff water as well as rainfall.					
Rehabilitation or construction of wharf facilities	Localized erosion and habitat disturbance resulting from wharf rehabilitation or construction activities	• Use sediment control measures (e.g., silt curtains, containment barriers) • Minimize vegetation removal at riverbanks • Limit works to dry-season periods to reduce turbidity • Prioritize rehabilitation of existing wharfs over construction of new wharfs	• Prescence of cleared and unutilised land • Prescence of erosion control measures where necessary	Site inspections by the PIU Visual inspection during AfDB Supervision Missions Environmental and Social Performance Audits	During construction or rehabilitation of wharf facilities	Contractor, PIU	$5,000 Nle115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	Operation and Maintenance Phase						
Farming operations (planting, harvesting)	Degradation of soil fertility caused by the overuse or improper application of fertilizers Loss of biodiversity resulting from the excessive or inappropriate use of pesticides	• Promote conservation farming techniques, crop rotation, and agroforestry • Annual soil tests to monitor nutrient levels and adjust fertilizer application accordingly • Schedule fertilizer applications to coincide with the crop's growth stages, optimizing nutrient uptake and minimizing excess accumulation • Manage crop residues effectively to improve organic matter content and nutrient recycling • Training of farmers on use of agrochemicals. • Implement Pest & Vector Management Plan	The following parameters: pH, EC, N, P, K	Soil analysis results incorporated into monthly reports submitted to the AfDB	Annual soil quality test commencing with start of farming operations	PIU, MAFS Extension Officers	$20,000 NLe 460,000
Agrochemical use	Pollution of water bodies from fertilizer and pesticide runoff, leading to eutrophication, death of aquatic organisms, and overall degradation of water quality	• Enforce training on safe agrochemical handling; promote Integrated Pest Management (IPM) • Provide extension services to ensure that fertilizer application is optimized (quantity, timing, type, etc.), reducing runoff and eutrophication risk.	Number of farmers trained on safe agrochemical use Water quality tests for N,P,K	Monthly reports to AfDB	Implementation throughout farming operations	MAFS Extension Officers, PIU	$50,000 Nle460,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• Utilize slow-release fertilizers reducing the risk of leaching and runoff. • Implement Pest/Vector management Plan to regulate chemical use. • Employing targeted and selective application of pesticides, using only when necessary. • Training farmers on correct pesticide application methods to minimize drift and runoff.					
Small-scale irrigation	Over-abstraction of water resources leading to a decline in groundwater tables and reduced downstream flow volumes in surface water bodies	• Monitor abstraction rates; • Establish community water management committees • Implement rainwater harvesting where feasible • Implement efficient water management practices to minimize evaporation losses.	Grievance logs: Numbers of complaints related to water use or abstraction Establishment of water management committees	Monthly reports to AfDB AfDB Supervision Missions Environmental and Social Performance Audits	Implementation to start during planning for irrigation with formation of water management committees and continue throughout farming operations that include irrigation.	PIU, EPA, Ministry of Agriculture, NWRMA, Water Users Association Implementation to start during planning for irrigation with formation of water management committees	$7,000 Nle161,000
ATC and AC operations	Environmental degradation resulting from improper disposal of rice husk and other organic waste products generated during rice production	• Explore alternative uses for rice husk and other residues, such as in the production of bioenergy, biofuels, or as raw materials for other industries. • Implement composting programs to convert	No evidence of haphazard disposal of organic waste from rice production	Site inspections by PIU/MAFS Monthly reports to AfDB AfDB Supervision Missions Environmental and Social		PIU, ATC Management, Ministry of Agriculture	$8,000 Nle184,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		organic residues into nutrient-rich compost • Raise awareness among local communities about the importance of proper waste management and the potential uses of agricultural residues. • Implement waste management plan		Performance Audits			

Transportation of produce from Farm to ATC and ATC to AIH.	Increase in road traffic accidents and vehicular emissions due to elevated transport activities associated with the project	• Vehicle maintenance programs; driver training on road safety and load management
		• Optimization of routes and schedule of transport
		  • Discourage nighttime transportation
		• Development and implementation of a Transport plan.
		• Conduct public awareness on transportation
		• Enforce speed limits
		• Provide training to drivers on
		  • Load management
		  • Fatigue management
		• Encourage regular servicing of vehicles
			Number of transport accidents attributed to Project;
			Vehicle maintenance logs
			Number of drivers trained on fatigue management, load management, etc
				Monthly reports to AfDB
				AfDB Supervision Missions
					Implementation throughout operations	PIU, Local Transport Operators	$5,000
							Nle115,000

Operations and Maintenance	Occupational health and safety impacts arising from the use of heavy equipment during	• Provide hearing protection where necessary (when sound level over 8 hours reaches 85 dB(A)).	Incident / accident statistics / reports	Monthly reporting to PIU by private sector	Implementation to start with commencement of	PIU, Tractor owners and operators, ATC operators	$5,000 NLe115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	planting, harvesting, and primary processing activities at Aggregation and Transformation Centres (ATCs)	• Monitor weather forecasts for outdoor work and adjust work and rest periods to ensure employees are safe and comfortable. • Provide temporary shelters or rest areas for the workforce. • Ensure that workers have an adequate drinking water supply. • Provide training and licensing for industrial vehicle operators to ensure safe vehicle operation and establish clear rules and procedures for vehicle use. • Implement quality control and maintenance programs to ensure equipment is in good working order and reduce the risk of accidents due to equipment failure. • Ensure that provisions for reporting incidents, accidents, and dangerous occurrences are in place. • Ensure that workers undergo safety inductions. • A well-stocked first aid box, which is readily available and accessible, should be provided on the site premises. • Emergency telephone numbers, such as those for the ambulance and fire	Number of OHS related grievance received vs resolved. Industrial vehicle operators properly licensed Evidence of initial OHS training (induction) for all workers Evidence of ongoing OHS related training Evidence of training provided to workers on communicable diseases	Monthly reports to AfDB AfDB Supervision Missions	farm and ATC operations		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		department, should be adequately and prominently displayed. • Signs such as "NO SMOKING" must be prominently displayed within the sites, especially in parts where flammable materials are stored. • Enforce the strict adherence to standard operating procedure for all work • Guard machines and equipment to protect workers from injury. • Provide dust masks for operators working in dusty conditions such as rice husking. • Provide workers with awareness training on preventing infection from diseases such as influenza, typhoid, and sexually transmitted diseases. • Ensure well maintained and clean gender segregated sanitation facilities, including handwashing stations, are available on site. Facilities to include constant running water.					
	Improved household and community revenue resulting from increased	• Employment on farms to prioritise locals • Training to be provided to community member to	Increased household incomes	Community interviews and economic surveys	Sample size of participating households costs for	PIU, Ministry of Agriculture	$6,000 NLe138,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	rice yields in participating communities	upskill them for more intensive rice cultivation and associated industries • Continued support from MAFS extension services to help maximise yield and provide farmers with advice on agrochemicals usage, seed varieties, weather and planting times.			recurring economic surveys. First survey conducted prior to the first harvest and continued annually throughout project.		
ATC and Tractor operations	Labour rights violations, including child and forced labour, within project-related activities Delayed or partial payment of wages may lead to worker grievances and workplace conflict Discrimination in employment practices, particularly against women and persons with disabilities.	• Ensure workers' contracts stipulate the expected remunerations, duration, period, and working conditions. Workers are to be aware of the details of their contracts. • Ensure the workers' payment rates meet the national standards for each job category/type. • Ensure timely payments of salaries • Ensure Provision of Workers' Grievance Redress Mechanism (GRM). • Operators should develop and implement clear equal employment opportunity conditions that explicitly prohibit discrimination based on gender or disability. • Operators to meet minimum 30% requirement of female employment as	Employment records Signed employment contracts Signed CoCs Number or worker GRM cases received vs resolved Percentage of women employed	Inspection of employment records compared against signed contracts and CoCs Interviews of workers to determine whether they have signed contracts and CoC Monthly reports to AfDB	Employment data collected monthly from operators Bi-annual audits	Operators of ATCs and Tractors	No additional cost

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		stipulated by national legislation • All workers are to sign CoCs. • Develop and enforce a code of conduct prohibiting child and forced labour.					
	Contamination of soil and both surface and groundwater due to improper disposal of fuel and lubricant waste	❖ Fuel and lubricant leaks from vehicles and other machinery shall be immediately rectified. ❖ Any contaminated waste stockpiled separately and disposed by an EPA licensed waste contractor. ❖ Fuel storage sites to be bunded to 120% capacity of fuel containment	Oil sheen or discoloration on nearby water bodies Existence and condition of containment measures (e.g., bunds, drip trays, oil separators) Volume of used oil and lubricant disposed via EPA licensed contractors	Visual inspections and photographic evidence during site audits Site inspection checklists; engineering supervision reports Waste manifests and receipts from EPA-licensed hazardous waste disposal companies	Implementation to start with operation of ATCs	ATC operators Bi-annually during operations	$10,000 NLe 230,000
River Transportation to and from processing centres	Water pollution and aquatic disturbance during riverine paddy transport	❖ Provide spill prevention training for boat operators ❖ Prohibit refueling or maintenance near water ❖ Monitor turbidity and fuel residues near loading areas Fuel storage sites to be bunded to 120% capacity of fuel containment	Oil sheen or discoloration on nearby water bodies Existence and condition of containment measures (e.g., bunds, drip trays, oil separators)	Visual inspections and photographic evidence during site audits Operator training reports Incident reports	Training of operators to be conducted before operation of AIH and ATCs.	PIU, Wharf Captain	$5,000 Nle115,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
			Operator training records Fuel spill incident reports Water quality test results (see earlier sections)	Water Quality results			
	Unsafe navigation or boat-related accidents in riverine transport corridors	❖ Require operator licensing and safety training ❖ Equip boats with life jackets and safety gear	Number of trained operators Inspection of boat safety gear Complaints or incidents recorded	Training records Visual inspections of safety gear on boats Incident accident reports Grievances related to safety of river transport	Operators trained prior to the start of river transportation Life jackets provided before start of river transport	PIU, Local Wharf Captain, Water, Sierra Leone Maritime Administration	$10,000 Nle230,000
Decommissioning and Restoration Phase							
Demolition of ATC/AC	Generation of noise, dust, and solid waste, along with occupational health and safety concerns during demolition of facilities	Noise ❖ Limit demolition to daylight hours (typically 08:00–17:00) to reduce disturbance. ❖ Use well-maintained and quieter equipment fitted with silencers/mufflers. ❖ Install temporary noise barriers or acoustic screens around the demolition site, especially near sensitive	Noise levels (dB) Air Quality (PM2.5 & PM10) Waste disposal manifests Incident / accident statistics Visual inspections of demolition site	Air and Noise monitoring reports Inspection of waste disposal manifests Site inspections	Training and hazard assessment to start prior to conducted first. Followed by approval of demolition plan prior to the start of demolition	PIU, MAFS, ATC Operators, EPA	$14,000 Nle322,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		receptors (e.g., homes, schools, clinics). ❖ Monitor ambient noise levels regularly and compare against permissible limits (e.g., 70 dB(A) daytime). • Notify nearby communities in advance about noisy activities and duration. Dust • Wet down demolition sites to supress dust • Provide dust masks to workers Waste • Separate waste into appropriate waste streams • Prioritise reuse and recycling of waste. • Hire EPA licensed waste company for disposal of all contaminated waste OHS • Provide training to all workers involved in demolitions • Provision of appropriate PPE for demolition staff • Restrict access to trained and authorised personnel only • Conduct pre-demolition hazard assessment and develop demolition plan					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		taking into consideration identified hazards					
	Restoration of natural vegetation to project areas	• Regrade sites • Restore topsoil • Replant native vegetation • Monitor vegetation establishment • Check soil quality	Vegetation cover Vegetation survival rate; Soil quality assessments (N,P,K)	Site inspections Results of soil quality tests	Six months and one year after completion of restoration activities	MAFS	$20,000 Nle460,000
						Total Estimated Budget	**$266,000** **NLe** **6,118,000**

9.4 BUDGET SUMMARY

Project Stage	Estimated ESMP Cost (USD)	Estimated Cost (NLe)
Preconstruction Phase	**40,000**	**920,000**
Stakeholder Consultations and farmer Identification	20,000	460,000
Screening of sites for Environmental Risks	15,000	345,000
Stakeholder consultations prioritizing vulnerable groups	5,000	115,000
Construction Phase	**66,000**	**1,518,000**
Air and Noise Monitoring during land development and ATC construction	10,000	230,000
Monitoring of land clearance and tree planting	8,000	184,000
OHS Measures: PPE, Signage, safety training, fire extinguishers, gender segregated toilets (with water and soap)	10,000	230,000
Community Safeguards: signage, flag men, community awareness, site demarcation, coordination with government bodies such as Sierra Leone Police and Sierra Leone Road Safety Authority	5,000	115,000
Traffic Management	10,000	230,000
GBV awareness training to workers and the community	5,000	115,000
Water Quality Tests	5,000	115,000
Waste Management	6,000	138,000
Sediment Control during rehabilitation or construction of wharf facilities	5,000	115,000
Operations and Maintenance Phase	**126,000**	**2,898,000**
Soil Quality Testing	20,000	460,000
Water Quality Testing	50,000	1,115,000
Small Scale Irrigation: Set up and operationalization of Water Management Committees , rainwater harvesting	7,000	161,000
Waste Management: Alternative uses of for organic waste i.e. composting, animal feed; Waste management including contaminated waste	18,000	414,000
Traffic Management	5,000	115,000
OHS Measures: Mechanised farming and ATC operations	5,000	115,000
Annual household economic surveys	6,000	138,000
River transport: pollution control, training, health and safety	15,000	345,000
Decommissioning Phase	**34,000**	**782,000**
OHS: Demolition of ATCs: PPE, Air and Noise monitoring, dust suppression, training of workers	14,000	322,000
Restoration of natural environment:	20,000	460,000
Environmental & Social Performance Audits	**40,000**	**920,000**
Grievance Redress Mechanism Implementation	**87,250**	**2,006,750**
Total Estimated Cost	**393,250**	**9,044,750**

9.5 MONITORING PLAN

The Monitoring Plan aims to track the effectiveness of mitigation measures identified in the ESIA, ensure compliance with regulatory requirements, and detect any unanticipated impacts throughout the project lifecycle.

Parameter	Indicator / Metric	Frequency	Project Phase	Responsible Entity	Reporting To
Air Quality (if applicable)	SO2, NO2, VOCs PM2.5, PM10	Quarterly	Construction	Contractor / PIU	EPA / AfDB
Noise Levels	LAeq (dB)	Quarterly	Construction	Contractor / PIU	EPA / AfDB
Soil Quality	pH, EC, N, P, K	Annually	Operation and Maintenance	Soil Lab / PIU	MAFS / EPA
Water Quality	pH, EC, TDS, COD, Turbidity, Nitrate (NO_3^-), Nitrite (NO_2^-), Ammonia (NH_3/NH_4^+), Phosphate (PO_4^{3-}), Sulphate (SO_4^{2-}), Fluoride (F^-), Iron (Fe), Manganese (Mn), Sodium (Na^+), Potassium (K^+), Hardness (Total, Calcium, Magnesium), Chloride (Cl^-), Heavy Metals (e.g., Lead, Arsenic, Cadmium)	Bi-annually	Construction, Operation and Maintenance	Water Lab / PIU	MAFS / EPA
Health and Safety	Number of Incidents / Accidents	Monthly	All phases	Contractor / EHS Officer	PIU / AfDB
GBV/SEA Reporting	Number of cases reported/resolved	Quarterly	All phases	Social Safeguards Officer	PIU / Ministry of Gender / AfDB
Employment / Labour	Percentage local workforce Female percentage of workforce Contracts and CoCs signed by all staff	Monthly Monthly Bi-annual audits	Construction, Operation and Maintenance	Contractor / PIU	Ministry of Labour
Land Use / Access Issues	Complaints logged/resolved	Monthly	All phases	PIU / Community Liaison	Ministry of Lands / EPA / AfDB
Grievance Redress	GRM entries and resolution rate	Monthly	All phases	PIU / GRM Officer	AfDB / EPA

- Monitoring data will be compiled into monthly, quarterly and annual environmental and social monitoring reports. As a Category 1 Project under the AfDB ISS monthly reports are required. The EPA-SL requires quarterly and annual reports.
- Monitoring results will be used to inform adaptive management and corrective action where necessary.
- Community updates will be provided during public engagement sessions and via local notice boards or radio.
- After first year of project implementation an Environmental & Social Performance Audit will be conducted by a third party consultant on an annual basis to assess project compliance with E&S measure within this ESIA, national legislation and AfdB E&S requirements.

This monitoring framework ensures that the SAPZ project remains compliant with environmental and social requirements, supports transparency, and fosters long-term sustainability.

10 Roles, Responsibilities & Institutional Capacity

The successful implementation of the SAPZ Project requires the coordinated effort of various institutions and stakeholders. The following outlines the roles and responsibilities of key actors involved in the planning, execution, monitoring, and evaluation of the project. In addition an assessment of the institutional capacity of key entities involved in the implementation of environmental and social mitigation measures for the SAPZ Project in Port Loko District has been done. It evaluates the strengths, limitations, and readiness of each stakeholder institution to fulfil its responsibilities as outlined in the Environmental and Social Management Plan (ESMP).

10.1 Ministry of Agriculture and Food Security (MAFS)

Role: Lead implementing agency responsible for overall project coordination.

Capacity Assessment: MAFS has demonstrated experience implementing donor-funded agricultural programs. The Ministry is devolved at the district level with an established presence in each district headed by a District Agricultural Officer supported by staff from directorates of the ministry such as crop protection, extension and engineering. The district offices of MAFS have supported and continue to support existing projects such as the proposed SAPZ with technical backstop on matter related to the core functions of the Ministry such as advise on planting time, training of workers and community members on the proper use of agrochemicals, maintaining soil fertility, etc.

However, the Ministry has limited capacity for Environmental and Social Safeguards at the national and district levels. For safeguards it relies on hiring qualified personnel at the project level to fill this gap and ensure proper implementation of project safeguards.

Recommendations: Provide capacity building to Ministry staff on Environmental and Social Safeguards compliance to ensure that staff are aware if the importance of safeguards compliance and can support project safeguards staff. Furthermore, for the SAPZ project the services of two (2) dedicated E&S Specialists and two (2) Community Liaison Officers (CLOs) will be required to enhance the E&S capacity for its implementation. There will also be the need for a dedicated E&S budget, a vehicle and two (2) motorbikes to facilitate E&S implementation on the SAPZ project

10.2 Environment Protection Agency (EPA-SL)

Role: National regulatory authority for environmental compliance, including ESIA approvals, site inspections, and enforcement.

Capacity Assessment: The EPA-SL has a well-established framework for environmental regulation and is adequately staffed at the national level. The Agency has been devolved at the regional level with offices in Makeni, Kenema, Bo and Kono. However, district field presence is limited, often resulting in infrequent site inspections, especially if an environmental permit has not been acquired. Despite this, the Agency has qualified personnel and access to laboratory services that can be deployed for project-level monitoring.

Recommendations: Increase coordination with the EPA regional in Makeni which covers the SAPZ Project Areas.

Role: Local oversight and community interface, with responsibility for land use planning, development control, and grievance monitoring.

Capacity Assessment: The Port Loko District Council is actively involved in local development and has participated in ESIA consultations. The Council has experience with community engagement, grievance redress and each district council has an Environment and Social Officer. However, they tend to lack the expertise and experience required for meaningful oversight of donor safeguards. There have been efforts to build their capacity by the EPA and the World Bank.

Recommendations: Provide training to council staff on ESMP monitoring.

10.4 SAPZ Project Implementation Unit (PIU)

Role: Day-to-day project coordination, implementation of the ESMP, and liaison with AfDB and implementing partners.

Capacity Assessment: Experienced and dedicated people should form the technical staff of the PIU including an Environmental Specialist, Social Specialist, and Gender Specialist. As a PIU is yet to be recruited it is not possible to comments on their capacity to delivery on the environmental and social requirements at national level and AfDB.

Recommendations: Maintain continuous capacity-building, ensure regular reporting, and sustain community engagement activities.

10.5 Ministry of Lands, Housing and Country Planning (MLHCP)

Role: Oversight of land acquisition and land-use rights verification.

Capacity Assessment: The Ministry has legal authority over land administration but is often constrained by outdated records and institutional fragmentation. Ministry of lands representatives are present at the district level. Collaboration with the PIU and local landowners will be crucial in managing voluntary land donations and resolving disputes. Technical support from the Land Commission may be needed.

Recommendations: Develop a clear protocol for documenting land transactions and verifying consent processes, especially in customary land areas.

10.6 Capacity Building Plan for ESMP Implementation

Introduction

This Capacity Building Plan (CBP) supports the effective implementation of the Environmental and Social Management Plan (ESMP) for the SAPZ Project in Port Loko District. It responds directly to the institutional capacity assessment and is designed to strengthen the skills, tools, and systems of key actors responsible for monitoring, managing, and reporting environmental and social safeguards.

Objectives

- Strengthen the technical capacity of implementing agencies and local authorities on AfDB's ISS and

- Promote institutional sustainability of safeguard systems at national, district, and community levels.

Target Institutions and Responsibilities

Institution	Roles in ESMP Implementation
SAPZ PIU – Safeguards Team	Lead ESMP implementation, reporting, contractor compliance stakeholder engagement, and grievance resolution.
Ministry of Agriculture and Food Security (MAFS)	Provide policy direction, supervise ATC/AC functions, technical backstop and training.
EPA-SL Regional Office	Monitor environmental compliance and review incident reports.
District Council / Environment Office	Support local oversight, community liaison, and grievance handling.
Contractors and Service Providers	Implement site-level mitigation, health and safety measures, and labour management.
Community GRM Committees	Support grievance resolution and promote inclusivity.

10.7 Capacity Needs and Activities

Institution	Capacity Needs	Proposed Activities
SAPZ PIU – Safeguards Team	ISS 2023 compliance, reporting, adaptive ESMP implementation	- 3-day intensive training on AfDB ISS, ESMP supervision, Gender, GRM, and reporting
MAFS (Central & District)	Integration of ESMP into planning and oversight functions	- 2-day training on E&S safeguards, environmental permitting, climate adaptation
		- Quarterly technical backstopping missions (4/year)
EPA Regional Office (Makeni)	Enhanced site inspection techniques, agrochemical monitoring	- Training on agrochemical risk assessment
District Council	Oversight of social impacts, local stakeholder engagement	- Orientation on social safeguards, voluntary land acquisition principles, and GBV prevention
		- Support for community outreach sessions
Contractors & Subcontractors	Site-level ESMP implementation, OHS compliance, labour law awareness	- Biannual training on OHS, GBV/SEA, grievance redress, waste management, and emergency response
Community Grievance Committees	Grievances management and ensuring inclusion	- Training on community monitoring tools, feedback channels, and environmental awareness (4 sessions)

Timeline

Year	Activities
Y1	Initial trainings, procurement of materials, rollout of GRM and community awareness tools
Y2	First refresher trainings, targeted coaching support, baseline audit for gaps
Y3	Midterm ESMP review workshops, inter-agency coordination strengthening
Y4	Refresher and advanced trainings, local ownership transition strategy
Y5	Final capacity evaluation, documentation of lessons learned, sustainability planning

- The PIU Safeguards team will monitor training delivery and performance of target institutions.
- Post-training evaluations and semi-annual capacity audits will assess progress and adjust actions as needed.
- A Capacity Building Progress Report will be prepared annually and shared with AfDB.

11 REFERENCES

- **Statistics Sierra Leone (SSL)**. (2015). *Final Results – 2015 Population and Housing Census*. Available at: https://www.statistics.sl
- **Statistics Sierra Leone (SSL)**. (2015). *Thematic Report on Education and Literacy – 2015 Population and Housing Census*. Available at: https://www.statistics.sl/images/StatisticsSL/Documents/Census/2015/sl_2015_phc_thematic_report_on_education_and_literacy.pdf
- **Statistics Sierra Leone (SSL)**. (2015). *Thematic Report on Agriculture – 2015 Population and Housing Census*. Available at: https://www.statistics.sl
- **Statistics Sierra Leone (SSL)**. (2019). *Sierra Leone Demographic and Health Survey (SLDHS) 2019*. Available at: https://www.dhsprogram.com/pubs/pdf/FR365/FR365.pdf
- **Statistics Sierra Leone (SSL)**. (2018). *Sierra Leone Integrated Household Survey (SLIHS) 2018*. Available at: https://www.statistics.sl/images/StatisticsSL/Documents/SLIHS2018/SLIHS_2018_New/sierra_leone_integrated_household_survey2018_report.pdf
- **Statistics Sierra Leone (SSL)**. (2023). *Annual Agricultural Survey Report 2023*. Available at: https://www.statistics.sl
- **Environmental Protection Agency (EPA-SL)**. (2022). *The Environment Protection Act, 2022*. Freetown: Government of Sierra Leone.
- **Ministry of Agriculture and Food Security (MAFS)**. (2024). *SAPZ Project Concept Note* (Internal Document).
- **African Development Bank (AfDB)**. (2023). *Integrated Safeguards System (ISS) – Policy and Operational Guidance Manual*. Available at: https://www.afdb.org
- **Ministry of Environment and Climate Change**. (2010). *Sierra Leone Conservation and Wildlife Policy*. Freetown: Government of Sierra Leone.
- **Ministry of Agriculture, Forestry and Food Security**. (2010). *Sierra Leone Forestry Policy*. Freetown: Government of Sierra Leone.
- **Human Resources for Health – Sierra Leone**. (2015–2019). *District Staffing Norms and Facility Distribution Report – Port Loko*. Available at: https://hrhsl.org
- **CityPopulation.de**. (2023). *Population Data by District and Chiefdom – Sierra Leone*. Available at: https://www.citypopulation.de/en/sierraleone
- **Government of Sierra Leone. (2023).** *Feed Salone Strategy: Transforming Sierra Leone's Agri-Food Systems (2023–2030)*. Ministry of Agriculture and Food Security (MAFS), Freetown, Sierra Leone.
- **National Agricultural Transformation Programme (NAT 2023–2027)** Government of Sierra Leone, Ministry of Agriculture and Food Security.
- **National Land Policy (2017)** Ministry of Lands, Housing and Country Planning.

Ministry of the Environment / Environment Protection Agency Sierra Leone (EPA-SL).

- **Medium-Term National Development Plan 2019–2023**
  Government of Sierra Leone, Ministry of Planning and Economic Development (MoPED).

ANNEX 1: CODE OF CONDUCT (DRAFT)

SLLAP Code of Conduct and to be used by the contractor signing and with generic code of conduct stipulations that should be included (or similar clauses to the effect) in the CoC developed by the contractor for the project

Individual code of conduct

This individual **Code of Conduct** applies to and binds every and all employees, seconded staff, consultants, interns or volunteers working for or with or providing services or technical assistance under the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project at the Ministry of Agriculture and Food Security.

I ……., an employee/seconded staff/consultant/intern/volunteer, acknowledge and commit to adhering to the environmental, social, health and safety (ESHS) standards, following the project's occupational health and safety (OHS) requirements, and preventing Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and violence against children (VAC). All forms of GBV, SEA, SH or VAC are unacceptable, be it at the workplace/work site, the work site surroundings, at worker's camps, or the surrounding communities.

I accept to abide by the following terms and conditions in this code of conduct as long as I work for, with or on behalf of the Sierra Leone Land Administration Project:

Regarding ESHS and OHS

1. Will attend and actively partake in training sessions related to ESHS, OHS, Communicable Diseases and others as requested by my employer or service provider;
2. Always wear my personal protective equipment (PPE) when at the work site or engaged in project related field activities;
3. Adhere to a zero-alcohol policy during my working times and will refrain from the use of narcotics or other substances which can impair my mental faculty and abilities at all times.

Regarding equality of opportunity and treatment

4. Treat women, children (persons under the age of 18), and men with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic, or social origin, property, disability, birth or other status.

Regarding discrimination and violence based on gender or sexual exploitation and abuse/sexual harassment

5. Not use language or behaviour towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;

6. Not engage in any activity that will encourage sexual exploitation and abuse of project beneficiaries and members of the surrounding communities;
7. Not engage in sexual harassment of work personnel and staff; for instance, making unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct of a sexual nature is prohibited, e.g., looking somebody up and down; kissing, howling, or smacking sounds; hanging around somebody; whistling and catcalls; in some instances, giving personal gifts;
8. Not engage in sexual favours; for instance, making promises of favourable treatment (e.g. promotion), threats of unfavourable treatment (e.g. loss of job) or payments in kind or in cash, dependent on sexual acts-or other forms of humiliating, degrading or exploitative behaviour;
9. Unless there is the full consent[9] by all parties involved, not have sexual interactions with members of the surrounding communities or work colleagues. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered "non-consensual" within the scope of this Code;
10. Not commit any act of sexual violence that could result in physical, sexual or psychological harm or suffering to any individual or individuals, especially women and children;
11. Understand that sexual offences of any type are prohibited and will not compromise with anybody on the act of GBV/SEA/SH nor support the act;
12. Understand that sexual offence acts which includes sexual harassment; sexual exploitation; rape including a minor are all unacceptable and prohibited by law;
13. Will support the investigation of GBV/SEA/SH cases and will report to my supervisor any suspected or actual GBV case of my knowledge;

Regarding children under the age of 18:

14. Not participate in sexual contact or activity with children under the age of 18—including grooming or contact through digital media. Mistaken belief regarding the age of a child or his/her consent is not a defence or excuse.
15. Bring to the attention of my manager the presence of any children on the project sites or engaged in hazardous activities.
16. Wherever possible, ensure that another adult is present when working in the proximity of children.
17. Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
18. Not use any computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography.
19. Refrain from hiring children below the minimum age of 14 unless national law specifies a higher age in the context of the project, or any labour which places them at significant risk of injury.
20. Comply with all relevant local legislation, including labour laws in relation to child labour and minimum age.

[9] **Consent** is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained using threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child and national legislation consent cannot be given by children under the age of 18. Mistaken belief regarding the age of the child and consent from the child is not a defence.

21. Will take no naked picture of children.
22. When photographing or filming a child for work related purposes, I must:

a) Before photographing or filming a child, assess and endeavour to comply with local traditions or restrictions for reproducing personal images.
b) Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
c) Ensure photographs, films, videos, and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive way. Children should be adequately clothed and not in poses that could be sexually suggestive.
d) Ensure images are honest representations of the context and the facts.
e) Ensure file labels do not reveal identifying information about a child when sending images electronically.

SANCTIONS

Sanctions and classification of faults

The Ministry of Agriculture and Food Security shall be responsible for making decisions on the specific sanctions to be imposed on workers who fail to comply with this Code of Conduct. I understand that if I breach this Individual Code of Conduct, the Ministry of Agriculture and Food Security will take disciplinary actions according to the seriousness of the offense which could include:

- Reprimand (verbal or written).
- Precautionary notice
- Suspension and will forfeit one month's salary.
- Termination of contract or employment and summary dismissal
- If the context warrants, the Ministry shall report to the Police.

Infringements sanctioned with verbal notification.

Those behaviours that do not cause greater material or moral damage or harm to the Project, other workers and/or its relationship with the communities. Verbal warnings may involve a reminder of the Code of Conduct and its applicability.

Infringements sanctioned with written notification.

Those behaviours that cause slight material or moral damage or harm to the Project, other workers and/or its relationship with the communities and/or the environment.

Infringements with pecuniary notice

Applicable to recurrent offenders whose course of conduct or actions continue after being notified more than 2 times in writing. "Course of conduct" means a persistent pattern of conduct comprising two or more

acts carried out over a period that shows a continuity of purpose aimed at a particular person who is a survivor of the offence. The amount of these penalties will be set by the Ministry.

Infringements sanctioned with dismissal.

The dismissal of personnel shall be immediate in the case of serious misconduct in accordance with this Code of Conduct, and possible legal, civil and/or criminal actions for non-compliance.

Misconduct committed by employees are classified according to the following criteria:

Minor causes. Those considered of minor material or moral damage to the Project, other workers and/or its relationship with the communities will be punished with a written warning. Repetition of the same behaviour will be sanctioned with a second written warning. Repetition of the same behaviour after a second written warning will be sanctioned with a dismissal notice.

Serious Causes. All types of violence against women and children identified in Domestic Violence Act, Sexual Offences Act and the Child Right Act, in addition to others sanctioned in this Code of Conduct, under subtitles: Regarding discrimination and violence based on gender and Regarding children under the age of 18 will be considered serious misconduct. For the investigation and sanction of serious misconduct, the case will be referred to the relevant legal instances and, if proven, depending on the type of misconduct, the Ministry, will proceed to immediate dismissal.

If proven cases of violation of the fundamental rights of persons, particularly women or children, are identified, they will be referred to formal case management institutions with their consent, as a complaint for processing and sanction by the corresponding entity in strict application of the established legal procedures.

I understand that it is my responsibility to ensure that the environmental, social, health and safety standards are met; that I will adhere to the occupational health and safety management plan; and, that I will avoid actions or behaviours that could be construed as GBV. Any such actions will be a breach of this **Individual Code of Conduct**. I do hereby acknowledge that I have read the foregoing Code of Conduct, agree to comply with the standards contained herein, and understand my roles and responsibilities to prevent and respond to ESHS, OHS, and GBV issues. I understand that any action inconsistent with this **Individual Code of Conduct** or failure to act, may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Definition of GBV Concepts

GBV is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed (that is, gender) differences between male and female individuals. GBV includes acts that inflict physical, mental, or sexual harm or suffering; threats of such acts; and coercion and other deprivations of liberty, whether occurring in public or in private life. GBV includes the following concepts:

- **Sexual Exploitation and Abuse (SEA):** Sexual exploitation is a facet of GBV that is defined as any actual or attempted abuse of a position of vulnerability, differential power, or trust for sexual purposes, including but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another.
- **Sexual harassment (SH):** occurs between personnel and staff on the project and involves any unwelcome sexual advance or unwanted verbal or physical conduct of a sexual nature.

ANNEX 2: CONTRACTORS CESMP – REQUIRED CONTENT

KEY COMPONENTS OF THE C-ESMP	DESCRIPTION/DETAILS
E&S, ESG of CSR policy	E&S policy signed by the Managing director of the Contractor and clearly articulating the commitment of the Contractor for: (i) E&S management for all its construction sites and (ii) compliance with the E&S specifications of the Contract.
Scope/ coverage	(i) Description of the target/coverage and content of the worksite ESMP; (ii) Preparation and updating schedule/frequency in line with applicable requirements; (iii) Description of responsibilities in terms of quality assurance and validation
E&S resources allocated to the concerned worksites	Precise description of the resources allocated to E&S management (proportionate to the nature and scale of works) in terms of (minimum): (i) E&S manager; (ii) Any other Specialized E&S personnel; (iii) EOHS supervisors (number proportionate with workers at pick); (iv) Community liaison Officer (regardless of the title the one in charge of stakeholder engagement and participation); (v) Medical personnel (number to be determined based on size of the workforce)
	Logistics, communications, and in-situ equipment: (i) Appropriate car (assigned to the E&S team with verifiable chassis number)-Number depending on the size of the project; (ii) IT workstations-Number depends on the E&S team; (iii) In situ noise, air and water measuring equipment (number to be determined depending on the nature and size of the project).
Applicable E&S requirements	Based on the disclosed ESA reports a definition of the applicable regulations and standards shall be provided under this section (as a minimum): (i) National regulations (discharge requirements, minimum wage, working conditions, various construction restrictions/requirements, etc.); (ii) AfDB applicable operational safeguards requirements; (iii) where applicable WHO/FAO/ILO applicable standards; (iv) Any Good international industry practices (GIIP) as agreed with the Borrower and the Bank to be technically and financially feasible.
Operational inspection resources	***Site monitoring procedures****: (i)* Description of the roles and responsibilities including designated personnel; (ii) Definition of the frequency of the inspection based on internal procedures as well as regulatory requirements. ***Non-compliance detection and management procedure:*** (i) Identification and notification procedures per non-compliance level; (ii) Tracking and closing of

	the non-compliance; (iii) Data management and archiving; (iv) Definition of the performance indicators for managing non-compliances.
Worksites	Description of Worksites (as per definition in the relevant contract's clause to be specified [.....] : (i) Number of the worksites as part of the concerned contract; (ii) Location on a map with appropriate scale; (iii) Summary of the projected activities per sites; (iv) Plan opening and closure schedule; (iv) Description of access conditions; (v) appendix shall contain a Site Environment Protection/Rehabilitation Plan (SEPP) for each Worksite; (vi) Any other relevant information on the sites.
Documentation of initial site conditions	Prior to any works site conditions shall be described: (i) list and cover viewpoint; (ii) imaging or recording methods for each relevant aspects/components of the environment including sample points; (iii) description of the archiving system.
Comprehensive Labour Management Plan and procedures -CLMP	It is approved by the engineer prior to the commencement of the works and should provide as a minimum: (i) scope and structure; (ii) overview of the labour use/requirements on the project including type of workers; (iii) assessment of key potential labour risks; (iv) applicable labour including OHS legislation and standards in line with national and Bank's requirements; (v) resources for management of the plan; (vi) policies and procedures; (vii) summary of the terms and conditions of employment; (viii) grievance mechanism; (ix) management and monitoring action plan; (x) as applicable measures to prevent/address child labour, forced labour, modern slavery, human trafficking or GBV including SEAH; (xi) Management procedures; (xii) any additional relevant best practices.
Local workforce recruitment strategy	(i) Local labour requirements including Job profiles and qualification levels required, Recruitment mechanism and deployment schedule, Initial training to be provided by the Contractor linked to each job profile; (ii) Location and management of local recruitment office(s)
Health and safety plan	Description of how the contractor will manage and report on health and safety aspects both occupational and for community in relation to the concerned works (over the duration of the works): (i) Identification and characterization of health and safety risks; (ii) Description of working methods to minimize hazards and control risks in line with the hierarchy of control approach for both EOHS and CHS; (iii) List of the types of work for which a work permit is required; (iv) Personal protection equipment; (v) description medical facilities, health centres, ambulance (number depending on the workforce size), equipment, etc. at Worksites as well as medical staff and where applicable referring hospital/clinic; (v) Evacuation procedure for medical emergencies; (vi) organizational procedure for the management and reporting of incidents

	and accidents; (vii) monitoring and performance indicators; overall sensitization on communicable diseases and hygiene. The Plan will inter-relate functionally with other plans such as a Labour/Influx Management Plan; GBV handling procedures, as appropriate and the EPRP.
Emergency Preparedness and Response Plan (EPRP)	To be prepared based on the results of the risk and hazard assessment (RHA) and in coordination with the relevant local authorities and the affected community. Measures should be proportionate to the results of the RHA and minimum outline should be in line with the one in OS4
Project machinery and vehicle traffic management plan	In line with the machinery declared by the contractor: (i) Description of the fleet of vehicles/machinery used for the execution of the works; (ii) Deployment (Worksite & schedule) and maintenance sites for each vehicle and machine; (iii) description of the machinery requiring special authorizations/certification; (iv) identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and road users; (v) mapping of itineraries and description of mitigation measures (speed limits, dust suppression, etc.). The overall objective being To avoid or minimize community exposure to project-related traffic and road safety risks.
Handling Dangerous products/goods and incidents	As applicable: (i) Inventory of dangerous products per Worksite and per period; (ii) Transport and storage conditions including for chemical incompatibility; (iii) signalization, emergency rescue procedure and training.
Noise and vibration management	(i) Estimation of the frequencies, duration, days of the week and noise levels per Worksite (ii) Description of the mitigation measures
	For quarries located less than 500 m from human settlements: (i) planning (dates, hours, duration) of the shooting plan for rocks acquisition; (ii) surrounding communities sensitization planning.
Chance finds management	(i) Authorization/permit prior excavation in any suspected historical area; (ii) training of workers on reaction in event of uncovering of artefacts; (iii) procedure of handling/reporting chance finds to the relevant national Authority.
Communication and continued engagement with site surrounding communities	Includes (i) the appointment of a community liaison officer (CLO), (ii) the implementation of sites access/restriction information plan, (iii) a regular information/communication on temporary disturbance, and (iv) any goodwill material assistance to community's needs to reinforce their engagement in the project monitoring and evaluation.

Waste management	Proportionate to the nature and scale of the worksite: (i) Inventory of various wastes per worksite and per period; (ii) Description of the collection, intermediate storage, storage, handling and treatment methods for ordinary or inert waste; (iii) Description of collection storage and handling methods for dangerous/hazardous wastes; (iv) Assessment of reputability and legitimacy for all subcontractors in charge of managing/eliminating wastes.
Effluent management	With the following minimum information: (i) Characterization of effluents discharged to the receiving environment; (ii) Facilities for the treatment or pre-treatment of effluents; (iii) Measures for reducing the sediment content of rainwater runoff; (iv) Measures for monitoring the efficiency and performance of facilities for reducing sediment content of rainwater runoff; (v) Resources and methods for monitoring effluent and rainwater runoff quality
Clearing and revegetation	(i) Authorizations, Methods & schedule for clearing vegetation. (ii) Methods, species, and schedule for the revegetation of Worksites disturbed by the works.
Erosion prevention & watercourse silting control	(i) Location of erosion-prone areas; (ii) Methods and timetable for implementing anti-erosion measures, including the storage of topsoil
Rehabilitation of	Methods and schedule for the rehabilitation of Worksite, quarries, borrower pits, excavations…
Workers camp management	(i) Code of conduct; (ii) provision of lavatories and toilets (ratio of 8 per 1)
Overall code of conduct	(i) Internal rules, including no-employment of minor, non-discrimination in recruitment, no forced-labour, gender balanced whenever possible, zero-tolerance for GBV including SEAH; (ii) communication and relationship with host communities; (iii) internal Grievance mechanism.
Consolidated Training plan	Description of the training plan for qualified and non-qualified staff and where application periodic sensitization of relevant communities
Any other relevant EOHS clauses or topic	- -
Annexes	A. Environmental Protection Plan(s) for the Site (number and location specified above): - Site boundary on map with clear legend - Zoning of clearing, storage of usable wood, burning of vegetal waste - Definition of activities taking place on the Site: construction, storage, residence, offices, workshops, concrete production, etc.)

	- Layout of activity zones on the site: opening, operation, restoration, closure, etc. - Zoning for the storage of topsoil, earthworks, and materials - Access routes and control points - Site occupation schedule - Planning of the Site preparation - Liquid discharge points - Proposed sampling points for monitoring water quality - Atmospheric emission points - Location of hazardous product storage facilities - Location and mapping of waste treatment facilities when handled by an external service provider. - Any other information relating to environmental management at the Site. B. Emergency plan: - Description of facilities - Characterization of hazards - Emergency situations - Organizational structure - roles and responsibilities - Emergency procedures - Human and material resources - Itiatiating the plan - Reporting C. Contractor's track record in implementing similar ESMP: - Certificate of completion - Any other verifiable evidence
KEY COMPONENTS OF THE C-ESMP	DESCRIPTION/DETAILS
E&S, ESG of CSR policy	E&S policy signed by the Managing director of the Contractor and clearly articulating the commitment of the Contractor for: (i) E&S management for all its construction sites and (ii) compliance with the E&S specifications of the Contract.
Scope/ coverage	(i) Description of the target/coverage and content of the worksite ESMP; (ii) Preparation and updating schedule/frequency in line with applicable requirements; (iii) Description of responsibilities in terms of quality assurance and validation
	Precise description of the resources allocated to E&S management (proportionate to the nature and scale of works) in terms of (minimum): (i) E&S manager; (ii) Any other Specialized E&S personnel; (iii) EOHS supervisors (number proportionate with workers at pick); (iv) Community liaison Officer

E&S resources allocated to the concerned worksites	(regardless of the title the one in charge of stakeholder engagement and participation); (v) Medical personnel (number to be determined based on size of the workforce)
	Logistics, communications, and in-situ equipment: (i) Appropriate car (assigned to the E&S team with verifiable chassis number)-Number depending on the size of the project; (ii) IT workstations-Number depends on the E&S team; (iii) In situ noise, air and water measuring equipment (number to be determined depending on the nature and size of the project).
Applicable E&S requirements	Based on the disclosed ESA reports a definition of the applicable regulations and standards shall be provided under this section (as a minimum): (i) National regulations (discharge requirements, minimum wage, working conditions, various construction restrictions/requirements, etc.); (ii) AfDB applicable operational safeguards requirements; (iii) where applicable WHO/FAO/ILO applicable standards; (iv) Any Good international industry practices (GIIP) as agreed with the Borrower and the Bank to be technically and financially feasible.
Operational inspection resources	***Site monitoring procedures****: (i)* Description of the roles and responsibilities including designated personnel; (ii) Definition of the frequency of the inspection based on internal procedures as well as regulatory requirements. ***Non-compliance detection and management procedure:*** (i) Identification and notification procedures per non-compliance level; (ii) Tracking and closing of the non-compliance; (iii) Data management and archiving; (iv) Definition of the performance indicators for managing non-compliances.
Worksites	Description of Worksites (as per definition in the relevant contract's clause to be specified [.....] : (i) Number of the worksites as part of the concerned contract; (ii) Location on a map with appropriate scale; (iii) Summary of the projected activities per sites; (iv) Plan opening and closure schedule; (iv) Description of access conditions; (v) appendix shall contain a Site Environment Protection/Rehabilitation Plan (SEPP) for each Worksite; (vi) Any other relevant information on the sites.
Documentation of initial site conditions	Prior to any works site conditions shall be described: (i) list and cover viewpoint; (ii) imaging or recording methods for each relevant aspects/components of the environment including sample points; (iii) description of the archiving system.

Comprehensive Labour Management Plan and procedures -CLMP	It is approved by the engineer prior to the commencement of the works and should provide as a minimum: (i) scope and structure; (ii) overview of the labour use/requirements on the project including type of workers; (iii) assessment of key potential labour risks; (iv) applicable labour including OHS legislation and standards in line with national and Bank's requirements; (v) resources for management of the plan; (vi) policies and procedures; (vii) summary of the terms and conditions of employment; (viii) grievance mechanism; (ix) management and monitoring action plan; (x) as applicable measures to prevent/address child labour, forced labour, modern slavery, human trafficking or GBV including SEAH; (xi) Management procedures; (xii) any additional relevant best practices.
Local workforce recruitment strategy	(i) Local labour requirements including Job profiles and qualification levels required, Recruitment mechanism and deployment schedule, Initial training to be provided by the Contractor linked to each job profile; (ii) Location and management of local recruitment office(s)
Health and safety plan	Description of how the contractor will manage and report on health and safety aspects both occupational and for community in relation to the concerned works (over the duration of the works): (i) Identification and characterization of health and safety risks; (ii) Description of working methods to minimize hazards and control risks in line with the hierarchy of control approach for both EOHS and CHS; (iii) List of the types of work for which a work permit is required; (iv) Personal protection equipment; (v) description medical facilities, health centres, ambulance (number depending on the workforce size), equipment, etc. at Worksites as well as medical staff and where applicable referring hospital/clinic; (v) Evacuation procedure for medical emergencies; (vi) organizational procedure for the management and reporting of incidents and accidents; (vii) monitoring and performance indicators; overall sensitization on communicable diseases and hygiene. The Plan will inter-relate functionally with other plans such as a Labour/Influx Management Plan; GBV handling procedures, as appropriate and the EPRP.
Emergency Preparedness and Response Plan (EPRP)	To be prepared based on the results of the risk and hazard assessment (RHA) and in coordination with the relevant local authorities and the affected community. Measures should be proportionate to the results of the RHA and minimum outline should be in line with the one in OS4
Project machinery and vehicle traffic management plan	In line with the machinery declared by the contractor: (i) Description of the fleet of vehicles/machinery used for the execution of the works; (ii) Deployment (Worksite & schedule) and maintenance sites for each vehicle and machine; (iii) description of the machinery requiring special authorizations/certification; (iv) identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and road users; (v) mapping of itineraries and description of mitigation measures (speed limits, dust suppression,

	etc.). The overall objective being To avoid or minimize community exposure to project-related traffic and road safety risks.
Handling Dangerous products/goods and incidents	As applicable: (i) Inventory of dangerous products per Worksite and per period; (ii) Transport and storage conditions including for chemical incompatibility; (iii) signalization, emergency rescue procedure and training.
Noise and vibration management	(iii) Estimation of the frequencies, duration, days of the week and noise levels per Worksite (iv) Description of the mitigation measures
	For quarries located less than 500 m from human settlements: (i) planning (dates, hours, duration) of the shooting plan for rocks acquisition; (ii) surrounding communities sensitization planning.
Chance finds management	(i) Authorization/permit prior excavation in any suspected historical area; (ii) training of workers on reaction in event of uncovering of artefacts; (iii) procedure of handling/reporting chance finds to the relevant national Authority.
Communication and continued engagement with site surrounding communities	Includes (i) the appointment of a community liaison officer (CLO), (ii) the implementation of sites access/restriction information plan, (iii) a regular information/communication on temporary disturbance, and (iv) any goodwill material assistance to community's needs to reinforce their engagement in the project monitoring and evaluation.
Waste management	Proportionate to the nature and scale of the worksite: (i) Inventory of various wastes per worksite and per period; (ii) Description of the collection, intermediate storage, storage, handling and treatment methods for ordinary or inert waste; (iii) Description of collection storage and handling methods for dangerous/hazardous wastes; (iv) Assessment of reputability and legitimacy for all subcontractors in charge of managing/eliminating wastes.
Effluent management	With the following minimum information: (i) Characterization of effluents discharged to the receiving environment; (ii) Facilities for the treatment or pre-treatment of effluents; (iii) Measures for reducing the sediment content of rainwater runoff; (iv) Measures for monitoring the efficiency and performance of facilities for reducing sediment content of rainwater runoff; (v) Resources and methods for monitoring effluent and rainwater runoff quality
Clearing and revegetation	(iii) Authorizations, Methods & schedule for clearing vegetation.

	(iv) Methods, species, and schedule for the revegetation of Worksites disturbed by the works.
Erosion prevention & watercourse silting control	(i) Location of erosion-prone areas; (ii) Methods and timetable for implementing anti-erosion measures, including the storage of topsoil
Rehabilitation of	Methods and schedule for the rehabilitation of Worksite, quarries, borrower pits, excavations…
Workers camp management	(ii) Code of conduct; (ii) provision of lavatories and toilets (ratio of 8 per 1)
Overall code of conduct	(i) Internal rules, including no-employment of minor, non-discrimination in recruitment, no forced-labour, gender balanced whenever possible, zero-tolerance for GBV including SEAH; (ii) communication and relationship with host communities; (iii) internal Grievance mechanism.
Consolidated Training plan	Description of the training plan for qualified and non-qualified staff and where application periodic sensitization of relevant communities
Any other relevant EOHS clauses or topic	- -
Annexes	A. Environmental Protection Plan(s) for the Site (number and location specified above): - Site boundary on map with clear legend - Zoning of clearing, storage of usable wood, burning of vegetal waste - Definition of activities taking place on the Site: construction, storage, residence, offices, workshops, concrete production, etc.) - Layout of activity zones on the site: opening, operation, restoration, closure, etc. - Zoning for the storage of topsoil, earthworks, and materials - Access routes and control points - Site occupation schedule - Planning of the Site preparation - Liquid discharge points - Proposed sampling points for monitoring water quality - Atmospheric emission points - Location of hazardous product storage facilities - Location and mapping of waste treatment facilities when handled by an external service provider. - Any other information relating to environmental management at the Site.

	B. Emergency plan: - Description of facilities - Characterization of hazards - Emergency situations - Organizational structure - roles and responsibilities - Emergency procedures - Human and material resources - Intiating the plan - Reporting C. Contractor's track record in implementing similar ESMP: - Certificate of completion - Any other verifiable evidence

ANNEX 3: WASTE GENERATION AND MANAGEMENT

This Waste Management Plan (WMP) outlines strategies for the proper handling, storage, transportation, and disposal of waste generated during all phases of the SAPZ Project—Pre-construction, Construction, Operations & Maintenance, and Decommissioning. The goal is to ensure environmental compliance, worker safety, and community health while promoting sustainable waste practices in Port Loko District.

Pre-Construction Phase

Waste Type	Sources	Management Strategy
Packaging waste	Equipment deliveries	Recycle where possible; minimize packaging use.
Office waste (paper, etc.)	Project offices	Promote digital documentation; recycle paper waste.
Sanitary waste	Field teams	Use portable toilets; contract licensed disposal services.

Construction Phase

Waste Type	Sources	Management Strategy
Excavated soil and rubble	Land development and site clearing	Reuse onsite; dispose at approved locations.
Construction debris	Concrete, wood, metal, tiles	Segregate and store; reuse or send to licensed facilities.
Hazardous materials	Paints, fuels,	Store in secure, labelled containers; dispose via EPA-approved vendors.
Domestic waste	Construction office / laydown area	Provide waste bins; regular collection by licensed haulers.

Operations and Maintenance Phase

Waste Type	Sources	Management Strategy
Agrochemical containers	Pesticide/fertilizer applications	Triple rinse immediately after use; puncture to prevent reuse; store in labeled, weatherproof containers for collection by licensed hazardous waste handler.
Agricultural waste	Crop residues, spoiled grains	Promote composting or mulching to improve soil health; transport excess to designated organic waste disposal sites; strictly prohibit open burning.
Sanitary and office waste	ATC/AC operations	Implement waste segregation at source; maintain clean facilities with scheduled waste collection by municipal or approved service providers.
Equipment maintenance waste	Oils, filters, worn parts	Store used oil and filters in leak-proof, labeled containers in a bunded area; contract licensed recyclers or hazardous waste handlers for safe disposal.
E-waste	Office electronics, sensors, control units	Inventory obsolete electronic devices; store securely; dispose through certified e-waste recycling facilities in line with national standards.

Decommissioning Phase

Waste Type	Sources	Management Strategy
Demolition debris	Building dismantling	Sort and reuse materials; landfill disposal as last resort.
Obsolete equipment	Machinery and structures	Recycle or auction functional components.
Sanitary and residual waste	Final cleanup	Contract certified vendors for waste clearance.

General Guidelines

- All waste must be segregated at source (organic, recyclable, hazardous, etc.).
- Color-coded, labelled bins will be deployed across all project sites.
- Personnel will be trained on safe handling, storage, and emergency response procedures.
- No open dumping or burning will be permitted.
- Waste manifests and disposal records will be maintained.
- Partnerships will be developed with EPA-licensed waste service providers.

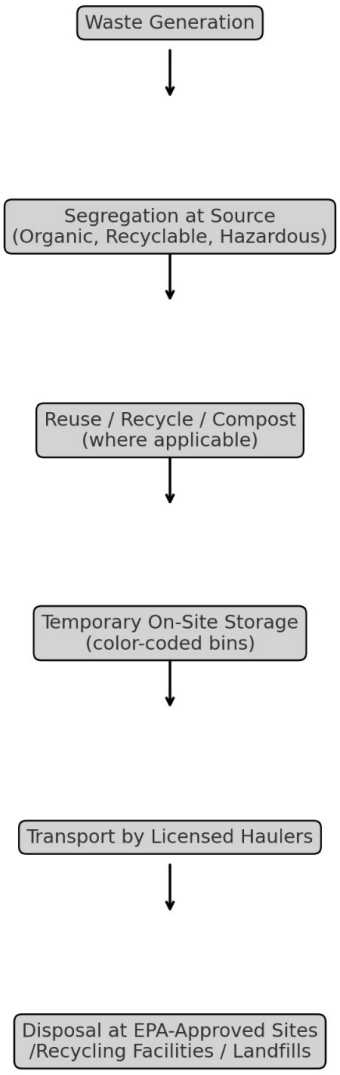


Figure 14: Waste Flow Diagram

ANNEX 4: LABOUR MANAGEMENT PLAN (LMP) FOR THE SAPZ PROJECT

Introduction

This Labour Management Plan (LMP) has been prepared in accordance with the African Development Bank (AfDB) Integrated Safeguards System (ISS, 2023) to address labour-related risks and guide the management of project workers throughout the lifecycle of the SAPZ Project in Port Loko District. It outlines policies, procedures, and mitigation measures to ensure fair treatment, protection, and non-discrimination in the employment of all categories of workers engaged under the project.

Objectives

- To promote fair and safe working conditions for all project workers.
- To ensure compliance with national labour laws and AfDB ISS 2023 requirements.
- To prevent forced labour, child labour, and discrimination.
- To provide a framework for managing grievances related to labour and working conditions.

Overview of Project Workers

Project workers are classified into the following categories:

- **Direct workers:** Individuals employed by the SAPZ Project Implementation Unit (PIU).
- **Contracted workers:** Employees of contractors and subcontractors engaged for construction, mechanization, and support services.
- **Community workers:** Labourers voluntarily engaged by local communities through community-based arrangements.
- **Primary supply workers:** Individuals employed by suppliers providing construction materials, equipment, or services directly related to project core functions.

Key Labour Risks

Identified labour risks include:

- Unsafe working conditions at construction and mechanization sites.
- Inadequate worker accommodation and sanitation.
- Contracts not in compliance with labour with labour laws
- Risk of child labour and gender-based violence (GBV).
- Inadequate grievance handling mechanisms for labour-related complaints.

- National Legal and Institutional Framework

The LMP aligns with:

- The Factories Act (Cap 66 of 1960): Governs workplace health and safety.
- The Employers and Employed Ordinance (1960): Outlines employer-employee relations.
- The National Social Security and Insurance Trust (NASSIT) Act (2001).
- The Child Rights Act (2007): Prohibits child labour.
- The Gender Equality and Women's Empowerment Act (2022).
- The Employment Act (2023)

Labour Management Procedures

- **Terms of employment:** Written contracts will be provided for all direct and contracted workers, outlining working hours, wages, benefits, and conditions.
- **Working conditions:** All workers shall have access to potable water, adequate sanitation, and rest areas.
- **Occupational Health and Safety (OHS):** Contractors will implement OHS plans including PPE provision, safety briefings, and first aid availability.
- **Child and forced labour:** Strict prohibition with routine monitoring and contractor declarations.
- **Gender equity:** Equitable recruitment and promotion processes. Specific provisions for women workers including maternity protection and GBV prevention measures.

Grievance Redress Mechanism for Workers

A separate grievance redress mechanism (GRM) will be established specifically for labour-related complaints. It will:

- Allow anonymous reporting.
- Be accessible via suggestion boxes, phone, or in-person reporting.
- Have designated staff within the PIU and contractors to receive and resolve grievances.
- Track, document, and report resolution outcomes.

Roles and Responsibilities

- **PIU Safeguards Team:** Oversee implementation and compliance monitoring of the LMP.
- **Contractors:** Implement labour management and OHS plans, report regularly to PIU.
- **Third-party monitors/CSOs:** Provide oversight and ensure fair treatment of workers.

Training and Capacity Building

- Regular training sessions for contractors and community supervisors on LMP provisions, OHS, and GBV prevention.
- Induction sessions for workers on rights, safety procedures, and the GRM.

Monitoring and Reporting

- Monthly labour reports by contractors to PIU.

- Labour audits conducted bi-annually.
- PIU to report labour-related performance to the AfDB during supervision missions.

This LMP will be updated periodically to reflect changes in project scope or emerging labour issues.

ANNEX 5: EMERGENCY RESPONSE PLAN (ERP) FOR THE SAPZ PROJECT

1. Introduction

This Emergency Response Plan (ERP) outlines preparedness, response, and recovery procedures for potential emergencies associated with the SAPZ Project. It specifically addresses transport accidents, chemical spills, fire, flooding, and civil unrest risks likely to occur during construction and operational phases.

2. Objectives

- To protect lives, the environment, and property.
- To establish clear procedures for emergency scenarios.
- To ensure coordination among project teams, contractors, and emergency services.

3. Scope

The ERP covers emergencies related to:

- Transport of materials and produce
- Loss of containment of agrochemicals
- Fire outbreaks
- Flooding incidents
- Occupational accidents
- Rioting and civil unrest

4. Emergency Scenarios and Response Measures

4.1 Transport Accidents

- Risks: Vehicle collisions, overturned trucks, material spills.
- Prevention: Route planning, driver training, regular vehicle maintenance.
- Response: Secure site, call emergency services, notify PIU, administer first aid, document incident.

4.2 Agrochemical Spills

- Risks: Contamination of soil and water, health hazards.
- Prevention: Proper storage, spill kits, PPE, MSDS available.
- Response: Evacuate area, contain spill, collect waste, notify PIU and EPA-SL, report.

4.3 Fire

- Risks: Electrical faults, equipment fires, agrochemical ignition.
- Prevention: Fire extinguishers on-site, no smoking signs, trained fire wardens.
- Response: Raise alarm, use fire extinguishers, evacuate, call fire service, report incident.

4.4 Flooding

- Risks: Disruption of project operations, equipment damage.
- Prevention: Proper drainage systems, construction scheduling.
- Response: Relocate equipment/materials, evacuate affected zones, assess damage.

4.5 Rioting and Civil Unrest

- Risks: Project disruption, threat to worker and community safety.
- Prevention: Maintain good community relations, early warning systems, coordination with local authorities.
- Response: Suspend non-essential operations, secure personnel and assets, communicate with security agencies, activate emergency communication protocol.

5. Emergency Contacts

Table 14: Emergency Contacts

Service	Contact
Police	112
Fire Brigade	999
Kambia District Government Hospital	+ 232 74196077
Health Emergency	117
EPA Regional Office	1999
PIU Emergency Focal Point	TBC

6. Training and Drills

- Quarterly emergency drills.
- Annual refresher training for staff and contractors.
- Emergency briefings during site induction.

7. Reporting and Review

- Incident reporting within 24 hours.
- Investigation and documentation of all emergencies.
- Post-incident review and update of ERP where necessary.

ANNEX 7: COMMUNITY STAKEHOLDER ENGAGEMENT

Community/Chiefdom/Date	Dates Kathoma / Kamasondo Chiefdom / 12th February 2025 Mange / Bureh Chiefdom / 14th February 2025 Rothum / Bureh Chiefdom / 16th February 2025 Mankara / Bureh Chiefdom / 13th February 2025
ESIA Team & Key Persons Met	**ESIA Team:** Abdulai Conteh, Environmental and Social Impact Assessment (ESIA), Consultant; Joseph Kaindaneh, Environmental and Social Safeguards Specialist, assigned from the Sierra Leone Rice Agro-Industrial Cluster Project, MAFS; Mamie Tucker, Monitoring and Evaluation Specialist, SLARiS Project Key Persons Met: Kathoma: Mange: Rothum: Mankara: Sheiku Marah (Chief), Shenbureh Marah (Mami Queen), Kelfa Marah-(Famer), Kelly Koroma-(Youth Leader), Musa Jawara (Farmer), Saio Koroma-(Farmer), Mohamed Marah-(Farmer), Fasalie Kamara-(Farmer), Daniel Marah-(Head Master), Sundu

	Marah-(Community Based Officer), Konkofa Koroma-(Community Based Officer), Foray Sesay-(Farmer), Ferengbe Koroma (Farmer), Maforay Marah-(Farmer), Fallah Marah-(Farmer), Mantenneh Koroma-(Farmer), Finnah H. Koroma- (Farmer). Other communities' members present counted were over 143 There were about 100 community members comprising of Community Elders, Farmers, Tribal Authorities, Women, Youth and Children;
Issues Presented	During a stakeholder engagement meeting held with local community members, the SAPZ Project team, represented by Joseph Kaindaneh and Mamie Tucker, provided a comprehensive overview of the proposed Sierra Leone Special Agro-Industrial Processing Zone (SAPZ) Project. The presenters emphasized that, as part of due diligence, all investment projects financed by the African Development Bank (AfDB) must adhere to both the Bank's Environmental and Social (E&S) Safeguards Standards and the E&S regulatory requirements of the Government of Sierra Leone (GoSL). The team noted that their visit was part of ongoing efforts by the GoSL and AfDB to identify and proactively address potential environmental and social impacts of the SAPZ Project, particularly those involving community access to land and natural resources. They stressed that active participation and the inclusion of community voices are critical to the project's success and that the project will depend on the availability of adequate land from host communities for activities such as rice production, processing, and the development of transformation hubs. Following this, Mr. Abdulai Conteh, the Environmental and Social Impact Assessment (ESIA) Consultant, delivered a detailed presentation on the purpose and value of the ESIA process. He explained that the ESIA is a critical instrument for assessing potential

	negative and positive environmental and social impacts associated with development projects like SAPZ. It serves as a tool to inform decision-making, enhance project sustainability, and develop appropriate mitigation measures to manage adverse effects. Mr. Conteh outlined several key benefits of the ESIA process, including: • Protection of environmental and social well-being; • Promotion of compliance with national and donor safeguard requirements; • Facilitation of informed planning and decision-making; • Provision for meaningful stakeholder engagement; • Establishment of mechanisms for grievance redress and communication. He encouraged participants to share their concerns, expectations, and any issues they believed should be taken into account. Topics he invited the community to comment on included: • Socio-cultural practices related to land and natural resources; • Traditional rites or sacred areas around the proposed SAPZ sites; • Gender equity in land access and benefit-sharing; • Potential land acquisition or resource use restrictions; • Preferred sustainable livelihood alternatives; • Environmental or social concerns specific to the communities; • Community leadership and land ownership structures; • Preferred channels for information dissemination and grievance resolution; • Opportunities and constraints to community participation; • Anticipated risks and threats to project success from a local perspective. This session concluded with a call for open dialogue and inclusive participation to ensure the SAPZ Project is responsive to community needs and priorities and implemented in an environmentally and socially responsible manner.

Responses & Discussions	Community Feedback and Reactions Following the SAPZ Project presentation, several community leaders and residents shared their reflections and feedback on the proposed initiative and the ongoing Environmental and Social Impact Assessment (ESIA) process. **Edward Lahai Marah**, the local councillor, expressed strong support for the SAPZ Project, emphasizing its potential to address the growing challenge of food insecurity in Sierra Leone. He assured the team of the community's full willingness to allocate land—both existing farmlands and additional areas—for project implementation. He further noted that such land allocation would not infringe on any ecologically sensitive zones such as forest reserves or protected areas. Councillor Marah advocated for continued stakeholder consultations throughout the project lifecycle to ensure transparency and local ownership. **The Town Chief of Kathoma** echoed this enthusiasm, describing the SAPZ as a project that would benefit not only his own community but the entire region. He confirmed the community's readiness to voluntarily provide land and expressed gratitude to the Government of Sierra Leone, the African Development Bank (AfDB), and the project consultants. He stressed the importance of open communication and reiterated the community's commitment to supporting project implementation. **Karifa Kamara**, a community member, shared his appreciation and highlighted that the people of the area have long recognized their agricultural potential and have eagerly awaited an opportunity such as the SAPZ. He affirmed that they were willing to voluntarily donate land and noted the availability of both active farmland and secondary forest areas suitable for project activities. **Alie Marah**, another Town Chief, expressed his support for the project and offered blessings for its success. He welcomed the new boundary demarcation proposal and confirmed the community's willingness to cooperate fully with project requirements. **Musah Kamara**, a respected town elder, stated that the SAPZ would enhance local rice production and improve the socio-economic conditions of the community, especially for women and youth. He emphasized that the lands to be donated do not encroach on any sensitive environmental habitats and voiced the community's keen anticipation for project commencement.
	Summary of Community Feedback and Expectations Community Observations and Conditions: • The dominant ethnic groups in the project locations (Kathoma, Mange, Mankara, Rothum) are the Temne and Loko.

	• All proposed SAPZ sites for voluntary land donation are outside protected areas or critical natural habitats and primarily consist of active farmlands and secondary forests.
	• Clear demarcation and mapping of the land parcels are requested to avoid future disputes.
	
	Livelihood Preferences and Suggestions:
	
	• In addition to rice farming, community members expressed interest in livelihood support through:
	  ○ Livestock rearing (including poultry),
	  ○ Civil works employment,
	  ○ Community health facilities,
	  ○ Educational infrastructure (especially for the girl-child),
	  ○ Tools for local road maintenance, and
	  ○ Access to improved water supply (gravity-fed systems, deep wells).
	
	Community Expectations of Leadership:
	
	• Chiefs and local leaders are expected to mobilize the community, conduct sensitization, and enforce agreed terms related to land use.
	• Formal agreements or Memoranda of Understanding (MoUs) should be developed and upheld to ensure transparency and fairness.
	
	Women and Youth Priorities:
	
	• Greater understanding of the SAPZ Project's components and benefits.
	• Access to transportation for rice and vegetables to markets.
	• Reliable and timely access to seeds and fertilizers to avoid water pollution and improve yields.
	• Alternative protein sources for nutrition.
	• Interest in micro-finance opportunities to support agribusiness.
	• Clarification on the benefits communities will receive in exchange for voluntarily donated land.
	
	This feedback underscores a strong willingness to support the SAPZ Project, coupled with clear community expectations for transparency, inclusion, and tangible benefits. The project team is expected to integrate these views into its planning, land acquisition, and benefit-sharing frameworks.

Table 1: Summary of Concerns, Comments and Views from Stakeholder Engagements in Selected Communities in Port Loko District

Comments, Issues and Views	Required Action / Response	Expectations
No drying floor and shelter from the sun and rain	The project will construct drying floors and shelters to provide facilitate rice drying and provide shelter	• Provision of personal protective equipment (PPE) for machine operators, farmers, and during fertilizer application activities. • Incorporation of local expertise in the development of the irrigation system and other project-related infrastructure • Project stakeholders are looking forward to environmental sustainability and technological innovation. • There is an expectation among stakeholders for support in acquiring quality seedlings, maintaining agricultural practices, and accessing machinery. • Stakeholders anticipate that the project will lead to market diversification. • Stakeholders expect the initiative to contribute to foreign exchange savings. • A crucial expectation is the creation of stable markets for local farmers, ensuring a reliable outlet for their produce. • Stakeholders foresee the project as a catalyst for business growth and development within the community.
Poor land development of rice fields from previous intervention projects	The project aims to improve land development practices through comprehensive evaluations and insights from past interventions. It will focus on detailed, sustainable land development plans that involve community engagement, aligned with the goals of the Environmental and Social Management Plan (ESMP) and the Environmental and Social Impact Assessment (ESIA). Additionally, strong monitoring and evaluation systems will be put in place to continuously assess progress and make necessary adjustments.	
Community members have expressed the need for a transparent and user-friendly process for submitting complaints and grievances.	Robust grievance redress mechanism (GRM) will be implemented to guarantee the prompt and equitable resolution of concerns.	
Stakeholders voiced their concerns regarding wildlife incursions on rice farms, specifically highlighting the	The project will introduce wildlife management strategies and protective measures outlined in	

	adverse impact of Grasscutters and cattle.	the Environmental and Social Management Plan (ESMP) to effectively protect crops.	• Increased rice production and enhanced food security are anticipated by stakeholders. • There is an expectation for improved access to land for women.
	Commitment to fostering ongoing engagement and maintaining transparent communication channels.	The project management team will ensure ongoing stakeholder engagement and maintain transparent communication channels throughout the project, as outlined in the Stakeholder Engagement Plan (SEP).	
	Fears that the project might impact water quality, specifically due to pesticides and saltwater intrusion.	A robust environmental management plan will be established to address water quality concerns, asoutlined in the ESMP.	
	The insufficient availability of pumping machines presents a significant challenge to meeting irrigation requirements.	The project will guarantee the supply of pumping machines to enhance irrigation efforts.	
Pictures			

Rothum	
Kathoma	 

Mankara			

ANNEX 8: PROJECT LOCATIONS

Location	GPS Position
Mankara	8°48'50.71"N, 12°53'54.57"W
Mange	8°55'14.09"N, 12°51'25.34"W
Rothum (Rotung)	8°50'31.93"N, 12°53'28.72"W
Kathoma	8°50'12"N, 12°56'24"W