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

The Ministry of Agriculture & Food Security

July 2025

CONTENTS

Tables

Figures

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
LRP	Livelihood Restoration Plan
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
RAP	Resettlement Action 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, 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 Kambia 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 Law

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 Summary of Project Alternatives

The ESIA considered three main alternatives for the SAPZ intervention in Kambia District: the "no project" scenario, locating the Agro-Industrial Hub (AIH) in a different district, and the proposed project as designed.

- **No Project Scenario**: Maintaining the status quo would result in continued low agricultural productivity, limited access to markets, and rising food insecurity. From a social perspective, rural poverty and exclusion of youth and women from value chains would persist. Environmentally, unregulated land use change to rice production and slash-and-burn practices would likely continue as more land is converted to rice production to compensate for low yields. Climate risks such as erratic rainfall and flooding would remain unmanaged due to the absence of climate-smart technologies.
- **Alternative Location for the AIH**: Districts like Bombali or Tonkolili were considered but ruled out due to greater distances from production zones in Kambia and Port loko, higher logistical costs, increased greater GHG emissions and greater risk of accidents. Unlike Kambia, these districts offered less alignment with the spatial clustering model of the SAPZ and posed higher risks of biodiversity loss due to land clearing.
- **Proposed Project in Kambia**: The preferred option involves siting the AIH in Robanna Village, Mambolo Chiefdom and supporting rice production across 20,000 hectares in Samu and Mambolo Chiefdoms. This approach minimizes environmental disruption by targeting existing farms thereby avoiding the need to clear undisturbed land for rice farming, promotes climate-resilient practices, and maximizes social benefits through inclusive value chains, employment generation, and access to improved infrastructure. It is aligned with Sierra Leone's Feed Salone Strategy and AfDB's Feed Africa priorities.

The proposed scenario is considered the most sustainable, socially inclusive, and climate-resilient option.

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 Kambia, including rice production support to 60,000 hectares and establishment of an ATC and AIH.

Key Valued Environmental and Social Components (VECs):

The ESIA identified several Valued Environmental and Social Components (VECs) that may be affected by the SAPZ Project in Kambia District. These include air quality, surface water resources, and soil quality, which may be impacted by construction activities, agrochemical use, and land development. Biodiversity, including flora and fauna in savannah and wetland ecosystems, is also a key concern due to potential habitat disturbance. Social VECs include community health and safety, occupational health and safety, livelihoods and food security, and the interests of vulnerable groups such as women, youth, and persons with disabilities. Land use changes and the potential presence

of cultural heritage sites were also flagged as important components requiring careful management throughout the project lifecycle.

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. It is critical for managing land donation processes for ATCs and farmland development.

- **National Development-Induced Resettlement Act, 2023**: Sets the standards for land acquisition and compensation. While twenty hectares of land has been acquired by Volontary Land Donation (VLD) the project is required to compensate the land owners for the loss of economic trees.
- **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.

OS5: Land Acquisition and Involuntary Resettlement—applies due to voluntary land donations and compensation for economic trees.

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 stakeholdersincluding 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.

ES5 Environmental & Social Baseline

The SAPZ Project in Kambia District spans a diverse ecological landscape comprising inland valley swamps, riverine wetlands, mangrove zones, savannah woodlands, and disturbed agricultural areas. Field assessments and surveys conducted between 2024 and 2025 indicate a moderately altered ecosystems, with significant anthropogenic pressure from subsistence farming, charcoal production, and shifting cultivation. Key environmental sensitivities include riparian habitats, estuarine mangroves, and seasonal floodplains, which provide vital ecosystem services such as flood regulation, groundwater recharge, and biodiversity support.

Soils within the project area are generally sandy clay loams with moderate organic carbon but low nitrogen, phosphorus, and potassium,indicating a need for soil fertility improvement. Baseline water quality tests indicate moderate turbidity and salinity in some streams and wells, though most parameters remain within acceptable thresholds for agricultural use. Air quality is generally good but shows elevated particulate matter during the dry season due to unpaved roads and local combustion sources. Noise levels remain moderate, with minor exceedances near populated areas.

Biodiversity assessments recorded 82 bird species and several reptile and mammal species of Least Concern, with no critically endangered species observed. Vegetation surveys identified key ethnobotanical species and two flora species classified as Vulnerable. The ecological landscape is characterized by early-stage secondary growth, fragmented habitats, and limited forest canopy recovery. No fauna of conservation note was recorded during biodiversity assessments.

Socially, the project communities of Samu and Mambolo Chiefdoms are agrarian and characterized by high youth populations, low formal education levels, and limited access to basic services. Health indicators reflect high malaria and typhoid prevalence, undernutrition, and limited access to healthcare facilities. Most residents rely on unimproved water sources and pit latrines, with widespread open defecation and informal waste disposal practices.

Women, youth, tenant farmers, and persons with disabilities are identified as vulnerable groups facing barriers to land access, participation, and economic opportunities. Nonetheless, stakeholder consultations indicate strong community support for the project, with expectations centered on employment, infrastructure improvements, and equitable benefit sharing. Cultural norms,

traditional authority structures, and religious diversity remain strong determinants of community dynamics and participation.

ES6 Stakeholder Consultations

Between October 2024 and February 2025, a series of stakeholder consultations were held in Mambolo, Kychum, and Robana communities in Kambia District as part of the Environmental and Social Impact Assessment (ESIA) process for the Sierra Leone Special Agro-Industrial Processing Zone (SAPZ) Project. These meetings were coordinated by the Ministry of Agriculture and Food Security (MAFS), ESIA consultants and community stakeholders.

Mambolo Community – Mambolo Chiefdom

- **Date**: 24 October 2024
- **Venue**: Chief Barray, Mambolo
- **Participants**: Town Chief, Land-Owning Families, Sierra Leone Produce Marketing Company (SLPMC), Farmers, Women, Youth, Persons with Disabilities, and Elders

Key Issues Discussed:

- Overview of SAPZ Project objectives and infrastructure plans;
- Emphasis on community involvement and environmental and social safeguards;
- Land ownership legacy issues involving SLPMC;
- Community requests for employment, agricultural inputs, and climate services.

Community Feedback:

- Broad support for the SAPZ Project, with emphasis on local stakeholder participation;
- Requests for job opportunities, timely input delivery, and inclusive engagement;
- Need for resolution of past land transfers involving SLPMC;
- Interest in improved climate information and compliance with local land tenure systems.

Kychum Community – Samu Chiefdom

- **Date**: 12 February 2025
- **Venue**: Chief Barray, Kychum
- **Participants**: Wife of the Paramount Chief, Youth Leaders, Community Members

Key Issues Discussed:

- SAPZ project scope and compliance with AfDB and national safeguard systems;
- Importance of participatory land access processes and mitigation of potential E&S risks;
- Need for inclusive benefit-sharing and respect for socio-cultural practices.

- Community land access arrangements

Community Feedback:

- Strong support for the project, including offers of voluntary land donation;
- Calls for improvement of road infrastructure between Mambolo and Kychum;
- Emphasis on job creation, social service enhancement (health, water, education), and full involvement of women and youth;
- Requests for continued consultations with broader community groups.

Robana Community – Kambia District

- **Date**: 13 February 2025
- **Venue**: Chief's House, Robana
- **Participants**: Town Chief and Community Representatives

Key Issues Discussed:

- Similar thematic focus as in Kychum, with emphasis on land access and inclusive development.

Community Feedback:

- Expression of urgency for project commencement and request for documentation of land arrangements.

Key Observations:

- All consulted communities expressed high levels of support for the SAPZ Project;
- Employment opportunities, infrastructure (especially roads), and access to social services emerged as cross-cutting concerns;
- Legacy land issues (especially in Mambolo) must be addressed in coordination with the SLPMC and traditional authorities;
- Communities emphasized the importance of sustained dialogue and participation throughout project implementation.

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 and impacts, 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 Phasing and Key Activities

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

- Preconstruction
  - Identifying appropriate farmland and landowners
  - Design of AIH, ATC & AC
- Construction
  - ATC & AC Construction
  - AIH 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 AIH & ATC and restoration of natural environment

The activities covered by this Environmental and Social Impact Assessment (ESIA) for the Kambia District segment of the SAPZ Project can be divided into four major phases. Each phase comprises a distinct set of interventions with corresponding environmental and social considerations. The phasing also allows for alignment with project safeguards, permitting, and stakeholder engagement timelines.

E7.1 Key Environmental & Social Impacts

Pre-Construction

- Loss of 20 hectares of land for construction of ATC & AIH
- Economic displacement due to removal of 500 oil palm, 600 mangos and 50 Yamane trees on the lands to be donated for the construction of the ATC & AIH.
- Disputes / grievainces arising from inadequate stakeholder engagement to secure the buy-in of approximately 4,000 farmers the project intends to support
- Disputes related to the selection process of approximately 4,000 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

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

Decommissionng and Restoration

Generation of noise, dust, and solid waste, along with occupational health and safety concerns during demolition of facilities

ES 7.3 ESMP

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Preconstruction Phase							
ATC & AIH Identification	Loss of 20 hectares of land for construction of ATC & AIH	• Conduct transparent stakeholder consultations • Complete VLD process (see Annex 6: Signed Volontary Land Forms) • Apply grievance redress mechanisms	• Signed VLD forms	Signed VLD included as part of ESIA	During project preparation	Ministry of Agriculture	N/A
	Economic displacement due to removal of 500 oil palm, 600 mangos and 50 Yamane trees on the lands to be donated for the construction of the ATC & AIH.	• Development & Implementation of RAP / LRP (see • Annex 7:) for signed crop compensation consent forms	• Signed RAP consent forms • Crop compensation payment records	RAP Completion Audit	Implementation completed prior to any construction activties	PIU, Ministry of Agriculture	$10,849 NLe249,527
Farm identification and stakeholder engagement	Disputes / grievances arising from inadequate stakeholder engagement to secure the buy-in of approximately 4,000 farmers the project intends to support Disputes related to the selection process of approximately 4,000 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	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	$40,000 NLe460,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
			received vs resolved				
	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 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.	• 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
	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 AIH & ATC/AC; Farm track spot	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	• Ensure strict enforcement of on-site and off-site speed limit regulations. • Provide the workforce with minimum Personal Protective Equipment (PPE) as required.	• Air Quality: PM2.5 & PM10 levels , SO2, NO2, VOCs • Noise Levels: dB • PPE Checklist	Air quality and noise level reports incorporated into monthly reporting to AfDB	Quarterly air quality surveys during construction, land preparation and farm track spot improvement	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
improvement; Wharf construction and rehabilitation	standards (Air and noise quality) and current baseline (air quality)	• 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	• Daily toolbox talk • Inpection reports for equipment and machinery maintenance				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 Replanting efforts if any to be done within 6 months of economic tree removal	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	• Occupational Safety, Health and Environment E&S Officer employed by the contractor	Contractor reports to the PIU Monthly PIU reporting to AfDB	CESMP drafted and approved prior to start of construction activities	Contractor Throughout all construction work	$15,000 NLe 345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		(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 the assignment and sensitize workers on the spread of infectious diseases. • Prepare and install warning and safety signs in work zones.	• Approved CESMP • Incident and accident statistics • HSE Training records (inductions, tool box talks) • Gender segregated toilet facilities provided for staff	AfDB supervision meetings 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 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					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 inform nearby community members. • Provide clear communication to the nearby communities about construction activities,	• 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	$7,500 NLe172,500

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 **Error! Reference source not found.**) 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	• 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
		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 • The Contractor will conduct regular training sessions on diversity, inclusion, and preventing discrimination for all employees, supervisors, and managers.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 farm tracks	• 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	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 farm track rehabilitation Mitigation methods to be implemented throughout farm track rehabilitation		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 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,	• 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

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		available support services, and reporting mechanisms.					
	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^-) Nitrite (NO_2^-)	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
		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.	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				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 stay within the established baseline where appropriate. • Make temporary drains as necessary to avoid waterlogging or erosion. These must be adequate	in the grievance register				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 NIe115,000
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 nutrient uptake and minimizing excess accumulation	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	$25,000 NLe 575,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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	$10,000 Nle230,000
AIH, 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	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& AIH Management, Ministry of Agriculture	$15,000 Nle345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Operations and Maintenance	Occupational health and safety impacts arising from the use of heavy equipment during planting, harvesting, and primary processing activities at Agro-Industrial Hub & Aggregation and Transformation Centres (ATCs)	• 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 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.	Incident / accident statistics / reports 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 reporting to PIU by private sector Monthly reports to AfDB AfDB Supervision Missions	Implementation to start with commencement of farm and rice processing operations	PIU, Tractor owners and operators, AIH & ATC operators	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 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.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 rice yields in participating communities	• Employment on farms to prioritise locals • Training to be provided to community member to 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	Increased household incomes	Community interviews and economic surveys	Sample size of participating households costs for recurring economic surveys. First survey conducted prior to the first harvest and continued	PIU, Ministry of Agriculture	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		usage, seed varieties, weather and planting times.			annually throughout project.		
ATC, AIH 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 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 ATC, AIH 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
		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 and AIH	ATC & AIH 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	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
			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 taking into consideration identified hazards					

Activity	Potential Impacts		Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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	**$328,379 NLe 7,552,717**

ES7.2 Budget

A budget of $460,629 is estimated for the implementation of this ESMP over the course of the SAPZ Project.

Project Stage	Estimated ESMP Cost (USD)	Estimated Cost (NLe)
Preconstruction Phase	**70,849**	**1,610,000**
Stakeholder Consultations and farmer Identification	40,000	920,000
Screening of sites for Environmental Risks	15,000	345,000
Stakeholder consultations prioritizing vulnerable groups	5,000	115,000
RAP/LRP Implementation	10,849	249,527
Construction Phase	**73,500**	**1,403,000**
Air and Noise Monitoring during land development and ATC construction	10,000	230,000
Monitoring of land clearance and tree planting	13,000 (8,000)	299,000
OHS Measures: PPE, Signage, safety training, fire extinguishers, gender segregated toilets (with water and soap)	15,000	345,000
Community Safeguards: signage, flag men, community awareness, site demarcation, coordination with government bodies such as Sierra Leone Police and Sierra Leone Road Safety Authority	7,500	172,500
Traffic Management	10,000	230,000
GBV awareness training to workers and the community	5,000	115,000
Communicable diseases awareness	2000	46,000
Water Quality Tests	5,000	115,000
Waste Management	6,000	138,000
Wharf rehabilitation / construction measure	5000	115,000
Operations and Maintenance Phase	**150,000**	**3,450,000**
Soil Quality Testing	25,000	460,000
Water Quality Testing	50,000	1,115,000
Small Scale Irrigation: Set up and operationalization of Water Management Committees , rainwater harvesting	10,000	230,000
Waste Management: Alternative uses of for organic waste i.e. composting, animal feed; Waste management including contaminated waste	20,000	460,000
Traffic Management	5,000	115,000
River Transport Management (training of boat operators, life jackets, etc)	10,000	230,000
OHS Measures: Mechanised farming and ATC operations	10,000	230,000
Annual household economic surveys	10,000	230,000
Decommissioning Phase	**34,000**	**782,000**
OHS: Demolition of AIH & 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	**87,250**	**2,006,750**
RAP Completion Audit	**5,000**	**115,000**
Total Estimated Cost	**460,629**	**10,594,467**

ES7.4 Key ESMP Implementation Indicators

- Full implementation of RAP/LRP
- 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

1 INTRODUCTION

1.1 PROJECT OVERVIEW

The African Development Bank is supporting the Government of Sierra Leone with 75 Million United States Dollars (USD) 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 Environmental and Social Impact Assessment (ESIA) focuses on the SAPZ interventions in Kambia District, specifically in Samu and Mambolo Chiefdoms. These interventions include the development of up to 60,000 hectares of climate-resilient rice production, the construction of an Agricultural Transformation Centre (ATC) and Aggregation Centre (AC) in Kychum, Samu Chiefdom, and the establishment of a full-scale Agro-Industrial Hub (AIH) in Robanna Village, Mambolo Chiefdom. These activities are complemented by rural infrastructure development and private-sector-led agro-processing.

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 2023 Operational Safeguards.
- 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 Kambia District namely Kychum, Robanna, Kobia and Ronna in Samu and Mambolo Chiefdoms. 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.
  - Stakeholder consultations extended over the cancelled project and into preparations for the SAPZ Project as the engagements
- ✓ 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
- **Noise:** Baseline measurements;
- **Air Quality:** Baseline measurements
- **Socioeconomic assessments:** using household surveys and comprehensive assessments (2024)
- **Surface & Groundwater:** Desktop and baseline assessment;
- **Weather and Climate**: Desktop assessment
- **Soils data**: Baseline assessment (2024)

2 POLICY, LEGAL & INSTITUTIONAL FRAMEWORK

2.1 NATIONAL POLICIES, PLANS & STRATEGIES

2.1.1 Feed Salone, 2023

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 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.

2.1.6 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 developmenkassirit, 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.

2.1.7 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.

2.1.8 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 issueance 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. 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 Sierra Leone Maritime Administration Act, 2000 (as amended)

The Sierra Leone Maritime Administration Act, 2000 establishes the legal foundation for regulating maritime affairs within Sierra Leone's jurisdiction. The Act created the Sierra Leone Maritime Administration (SLMA) as the national authority responsible for administering laws related to maritime safety, security, and pollution control in both territorial waters and inland waterways.

Key provisions of the Act include:

- Regulation of vessels, including registration, inspection, and certification of ships and other watercraft operating in Sierra Leonean waters;
- Standards for maritime safety, covering vessel seaworthiness, crew qualifications, and the prevention of marine accidents;
- Oversight of inland water transport, including ferries and riverine transport vessels, which is directly relevant to river transport activities in support of agriculture and trade;
- Environmental protection responsibilities, particularly concerning marine pollution prevention from ships and port operations.

Relevance to the Project: With the SAPZ project proposing wharf development and increased use of riverine transport to support logistics in Kambia District, the SLMA Act provides the statutory basis for ensuring safety and compliance in all navigable waterways. Project components involving transport of goods, construction of small jetties or wharfs, or engagement with boat operators must adhere to SLMA regulations. Coordination with the Maritime Administration will be essential to obtain necessary permits and ensure that river transport activities meet national safety and environmental standards.

2.2.7 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.

2.2.8 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.

2.2.9 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. .

2.2.10 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.

2.2.11 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

-

2.2.12 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.

Relevance to project: Volontary land donation and economic displacement will occur during this project. The act details the requirement for consultations, transparency and grievance redress during this process. The Act also encourages negotiated settlements as an alternative to involuntary resettlement.

2.2.13 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.

2.2.14 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

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 the table below. The AfDB ISS requirements are consistent with the national requirements and therefore no implementation conflicts are foreseen.

AfDB E&S 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 such as a waste management plan, grievance redress mechanism, emergency response procedures, and E&S monitoring framework, to ensure compliance throughout all project phases.	Conduct ESIA and ESMP; implement CESMPs; integrate grievance redress, monitoring, and climate risk management.
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 Pollution	To encourage the efficient use of resources (energy, water, raw materials)	According to **OS3**, which aims to reduce pollution and ensure sustainable use of resources, the SAPZ Project	Implement Pest Management Plan; manage waste, emissions, and

Prevention and Management	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).	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.	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 preparedness** and **worker-community interaction protocols** to ensure the well-being of project-affected populations.	Prepare Traffic Management, Emergency Response, and Hazardous Materials Plans; manage labour influx and GBV/SEA/SH risks
OS5: Land Acquisition, Restrictions on Access to Land and Land Use, and Involuntary Resettlement	To avoid or minimize involuntary resettlement and ensure that when it is unavoidable, affected people are compensated and assisted to improve or at least restore their livelihoods and living standards. OS5 promotes equitable access to project benefits and emphasizes	According to OS6 the SPAZ project will be required to compensate landowners for loss of economic tress on land donated for the construction of agro-industrial hubs and aggregation centres. The Project must complete the voluntary land donation process and develop a RAP detailing compensation for loss of economic trees.	Complete Voluntary Land Donation (VLD) process Complete resettlemt action plan.

	negotiated settlement and participatory planning.		
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 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.	Implement SEP and GRM; conduct inclusive consultations; disclose ESIA and safeguard plans throughout the project.

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.

2.4.3 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 Sierra Leone Maritime Administration (SLMA)

The Sierra Leone Maritime Administration (SLMA) is the national regulatory body established under the Sierra Leone Maritime Administration Act, 2000 (as amended) to ensure maritime safety, security, and environmental protection in all navigable waters under the jurisdiction of Sierra Leone. The SLMA is also responsible for regulating inland water transport, including passenger and cargo vessels operating on rivers and coastal areas.

2.4.6.1 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.

2.4.6.2 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).

2.4.6.3 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.

2.4.7 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 Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project is a Government of Sierra Leone initiative implemented by the Ministry of Agriculture and Food Security (MAFS) with financial and technical support from the African Development Bank. The overarching objective of the project is to reduce rice imports, enhance food security, create employment opportunities, and promote rural development through integrated agro-industrial development.

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 Kambia the Project will support approximately 4,000 farmers in the development of up to 20,000 hectares of climate-resilient rice production, the construction of an Agricultural Transformation Centre (ATC) and Aggregation Centre (AC) in Kychum, Samu Chiefdom, and the establishment of a full-scale Agro-Industrial Hub (AIH) in Robanna Village, Mambolo Chiefdom. These activities are complemented by rural infrastructure development and private-sector-led agro-processing.

The ATC[3] in Kychum will provide facilities storage, aggregation and primary processing of rice paddy for transportation to the industrial hub in Mambolo District where 'modern' processing and milling of rice will take place to produce a product comparable to imported rice. In terms of land acquisition for cultivation the project will work with farmers and communities to develop their own land and has no intention of acquiring such land. The ATC and AIH will be sited on land donated to the Project by the community, see Annex 6: Signed Volontary Land Forms.

The 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 Robanna, Kambia. ATCs will also be used to facilitate farmer access to essential inputs such as quality seeds, agro-chemicals and farm mechanisation. As required by the project, transport links such as farms tracks and wharfs will be created, maintained or upgraded to ensure produce can move from the aggregation centre to the main roads and ultimately to the industrial hub.

At the main Agro-Industrial Hub in Mambolo Chiefdom the project will focus on creating the enabling environment in terms of economic infrastructure (roads, water and sewage system, energy, communication (ICT), etc.) for the private sector businesses to acquire plots and operate their specific processing facilities.

When fully operational the Hub will provide a centralized facility designed to support the large-scale, mechanized processing of paddy rice into finished products such as milled white rice, broken rice, rice bran, and husk by-products. A hub typically includes modern rice milling equipment, storage and drying facilities, quality control laboratories, packaging units, and administrative offices. It serves as a value addition node within the agricultural value chain, enhancing post-harvest handling, reducing losses, and improving the marketability of locally produced rice.

The hub in Mambolo Chiefdom will operate by aggregating paddy from surrounding farming communities and production zones in Port Loko and Kambia Districts and subjecting it to a sequence of operations including cleaning, de-stoning, parboiling (where applicable), drying, milling, polishing, grading, and packaging. Advanced facilities may also include warehousing infrastructure, weighbridges, internal roads, water supply systems, waste management units, and energy. Hubs are instrumental in boosting productivity, stimulating rural economies, and strengthening national food security. They also create employment opportunities across various stages of the rice value chain, from farming to logistics, processing, and distribution.

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:

[3] 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.

- **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 Safeguard 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 SAPZ Project will be implemented across Kambia and Port Loko Districts, selected due to their combined availability of over 136,000 hectares of arable land suitable for rice cultivation in boli land, mangrove, and inland valley swamp (IVS) ecological systems. The project targets economically active smallholder farmers and SMEs engaged in agriculture in rural areas. Approximately 6,000 farmers

with an average farm size of 5 hectares are expected to benefit directly, while an estimated 150,000 individuals will benefit indirectly through increased employment, enterprise opportunities, and improved food security. Special attention will be given to the inclusion of women and youth, who constitute a significant portion of the agricultural value chain in Sierra Leone. Women, in particular, make up over 50% of value chain actors and will receive equitable access to all production support and services.

The Agro-Industrial Hub (AIH),the central processing site where industrial rice milling and value addition will take place will be located in Mambolo Chiefdom, Kambia District. This site was selected for its accessibility to regional infrastructure, proximity to urban markets, and the area's long-standing engagement with small and medium enterprises (SMEs). The hub is to be sited in Robanna Village in Mambolo Chiefdom, where existing but non-functional agro-processing infrastructure presents an opportunity for rehabilitation and re-use.

An Agricultural Transformation Centre (ATC) and Aggregation Centre (AC) will be constructed in Kychum, Samu Chiefdom, located across the Great Scarcies River from Mambolo Chiefdom. These facilities will support the aggregation, primary processing, and distribution of paddy rice.

Within Kambia District, Component 1 of the Project will be implemented across Samu and Mambolo Chiefdoms, supporting the development of 20,000 hectares of farmland under rice cultivation. The land comprises predominantly boli land and IVS ecosystems, though specific farm clusters are yet to be selected. Participating farms will be identified through a participatory process in consultation with landowners and community stakeholders.

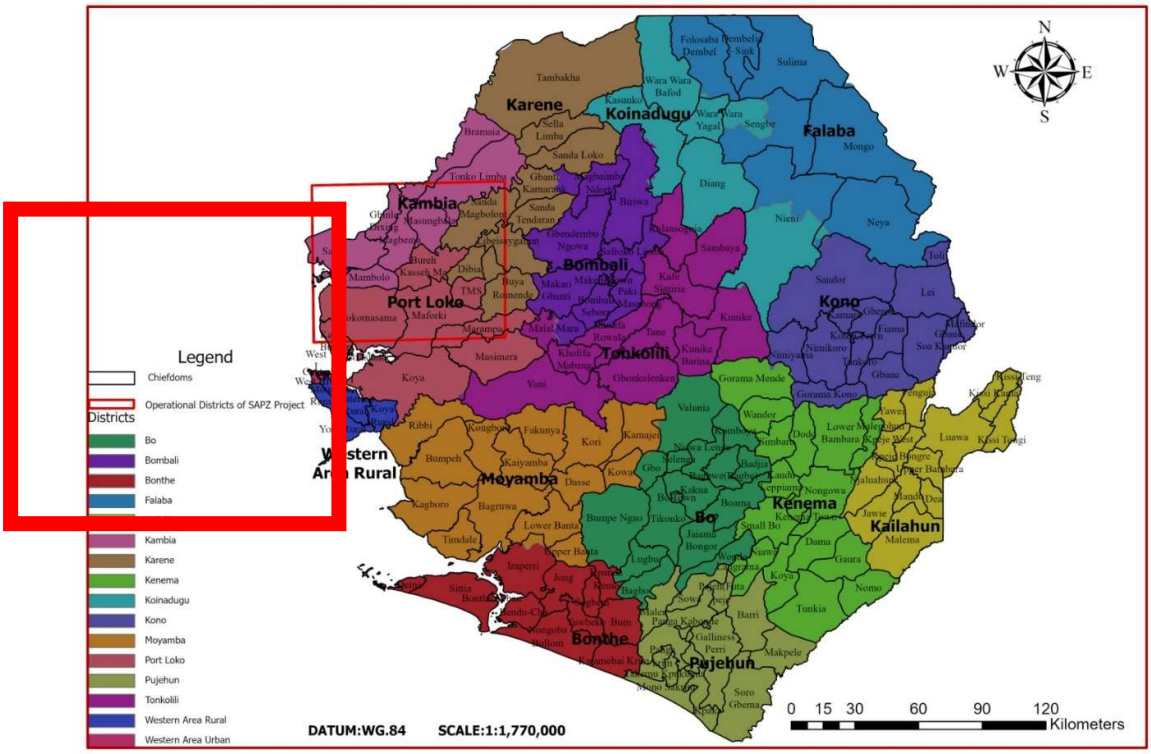


Figure 1: Map of Sierra Leone showing operational areas of SAPZ Project

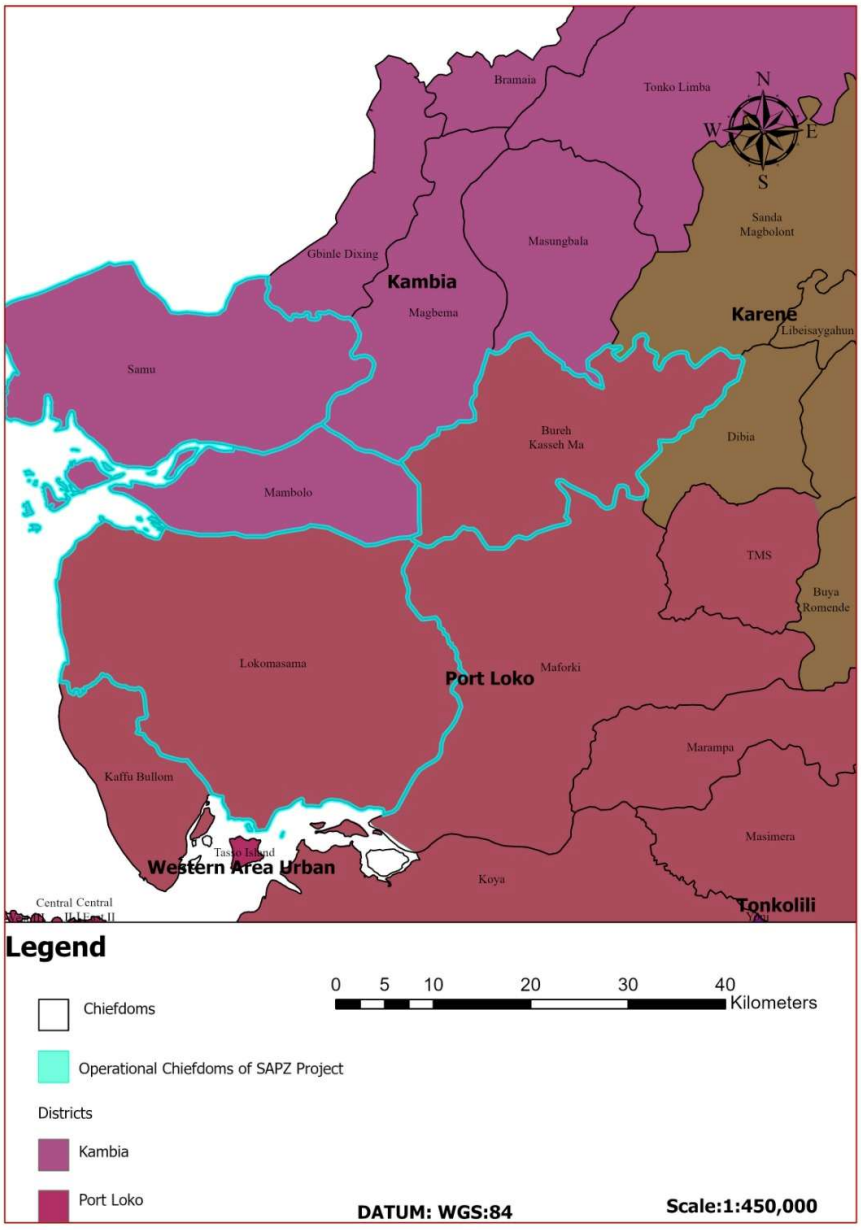


Figure 2: Project Chiefdoms- Loko Massama & Bureh (Port Loko District); Mambolo & Samu (Kambia District)

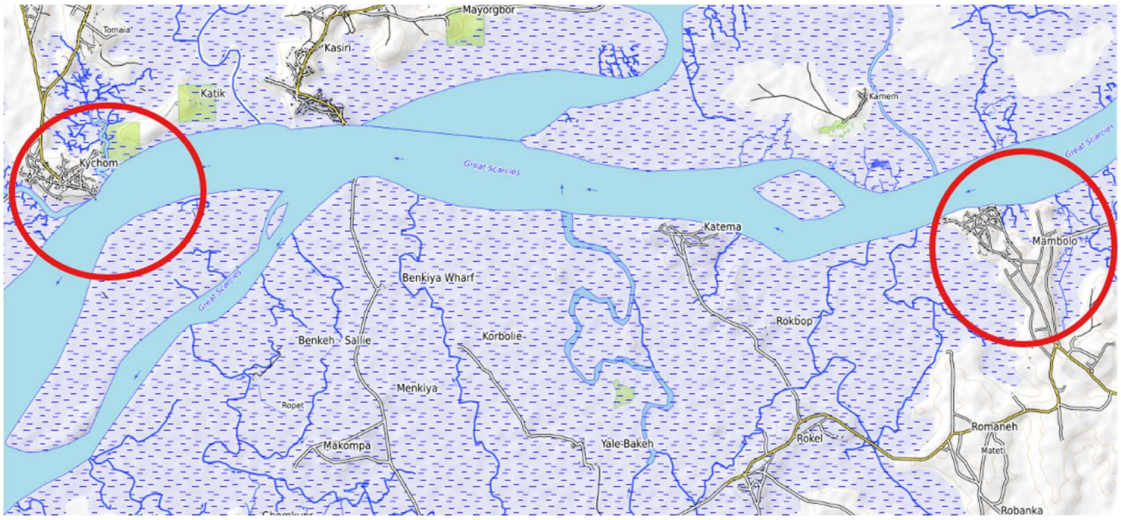


Figure 3: Location of Kychom and Mambolo

3.3.1 ATC Location

The proposed location for the ATC and AC in Kambia District is Kychom Fillie, a locality within Samu Chiefdom. The ATC will be constructed on 10 hectares of land and will be part of a voluntary land contribution by local communities as their in-kind support to the project. During stakeholder consultations, the community expressed strong support for the project and offered approximately 25 hectares of land for the establishment of the ATC/AC based on their perception of the benefits to be gained from the ATC. The identified area is flat, with no rivers, mangroves, or sacred sites nearby.

3.3.2 Agro-Industrial Hub Location

In Robanna, Mambolo Chiefdom, 10 hectares of land has been identified for the construction of the AIH and donated by the community as part of voluntary land contribution by the community as their in-kind support to the project.

3.4 Project Phasing

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

- Preconstruction
  - Stakeholder engagement
  - Design of AIH, ATC & AC
- Construction
  - ATC & AC Construction
  - Land Development and Preparation
  - Maintenance / rehabilitation of farm tracks
  - Maintenance / construction of wharf facilities
- Operations and Maintenance
  - Farming operations i.e. planting, harvesting, etc
  - Use of agrochemical i.e. pesticides, herbicides, fertilizers
  - Transportation
- Demolition & Restoration
  - Demolition of AIH & ATC and restoration of natural environment

The activities covered by this Environmental and Social Impact Assessment (ESIA) for the Kambia segment of the SAPZ Project can be divided into four major phases. Each phase comprises a distinct set of interventions with corresponding environmental and social considerations. The phasing also allows for alignment with project safeguards, permitting, and stakeholder engagement timelines.

3.4.1 Pre-Construction Phase

This phase involves the preparatory activities required for land access, engineering design, and safeguard planning. Activities under this phase include:

- Identification of appropriate farmland and landowners within Samu and Mambolo Chiefdoms for rice production support. This includes the delineation of the up to 20,000 hectares of land targeted under the project.
- Farm selection, including community engagement in Samu and Mambolo Chiefdoms.
- Design of the Agro-Industrial Hub, Agricultural Transformation Centre, and Aggregation Centre, covering architectural and engineering drawings, layout planning, and cost estimations.

3.4.2 Construction Phase

This phase includes the physical development of core infrastructure and associated facilities. Key activities are:

- Construction of the ATC and AC in Kychom, Samu Chiefdom, including platforms for aggregation, storage sheds, office spaces, and primary processing units;
- Construction of the Agro-Industrial Hub in Robanna, including processing facilities and support infrastructure;
- Land development and preparation in selected rice-growing areas through mechanized clearing, bunding, and irrigation layout;
- Rehabilitation and maintenance of farm tracks linking farms to the ATC and AIH to ensure efficient transportation of inputs and outputs.
- Rehabilitation and construction of wharf facilities linking farms to the ATC and the AIH to ensure efficient transportation of inputs and outputs.

Environmental management plans, occupational health and safety protocols, and community liaison systems will be actively implemented during this phase to mitigate construction-related impacts.

3.4.3 Operations and Maintenance Phase

The Operations and Maintenance (O&M) Phase marks the transition from infrastructure development to full-scale agricultural production and agro-industrial processing. This phase is expected to constitute the longest and most dynamic stage of the SAPZ Project's lifecycle in Kambia District. It involves the activation of farming systems, the commissioning of the Agro-Industrial Hub and Agricultural Transformation Centre, and the establishment of supporting services such as logistics, extension, and enterprise development. Key activities include:

3.4.3.1 Farming Operations

Large-scale farming activities will be implemented across the 20,000 hectares of boli and IVS lands identified in Samu and Mambolo Chiefdoms. Smallholder farmers and agricultural SMEs will be

supported to adopt climate-resilient rice varieties, conservation agriculture techniques, and improved agronomic practices. The main activities under farming operations include:

- Ploughing and land preparation using mechanized equipment;
- Seed broadcasting or transplanting of rice in prepared fields;
- Weeding, pest control, and irrigation through improved water management systems;
- Harvesting, threshing, and drying using improved harvesting techniques and equipment to reduce post-harvest losses.

Farmer groups and cooperatives will be organized and supported to access training, extension services, and subsidized inputs.

3.4.3.2 Agrochemical Application

To sustain productivity, farmers will use inputs such as chemical fertilizers, herbicides, and pesticides. The application of these inputs will be guided by a Pest Management Plan (PMP) and extension advisories to minimize health and environmental risks. Specific concerns addressed will include:

- Safe handling and application of agrochemicals with proper use of Personal Protective Equipment (PPE);
- Training of farmers on Integrated Pest Management (IPM) practices to reduce overdependence on chemicals;
- Establishment of agrochemical storage protocols and spill response measures;
- Monitoring of residual levels in soil and water to prevent contamination and ecological harm.

Appropriate mitigation measures will be embedded in the project's Environmental and Social Management Plan (ESMP) to safeguard human health and environmental quality.

3.4.3.3 Transportation and Logistics

This phase will witness an increase in transportation activities related to the inward movement of inputs and the outward movement of rice. Transport will involve:

- Haulage of paddy rice from farms to the ATC and AIH using tractors, trucks, and locally contracted vehicles;
- River transportation of paddy across the Great Scarcies River
- Distribution of milled rice to urban and regional markets;
- Movement of inputs such as seeds, fertilizer, and machinery to farm clusters.

These movements are expected to raise issues such as road safety, dust and noise pollution, river transport safety and emissions. Mitigation will include scheduled maintenance of driver / operator training on safe and responsible practices, and enforcement of load limits.

3.4.3.4 Agro-Processing Operations

The AIH and ATC will begin full operations, including paddy reception, drying, milling, packaging, and storage. This will lead to:

- Employment generation for skilled and unskilled labour in processing, quality control, and packaging;
- Energy use and waste generation, including solid organic waste and wastewater requiring safe handling and disposal;

- Occupational health and safety (OHS) risks, particularly around heavy machinery, requiring strong workplace safety protocols.

Private sector firms operating within the AIH will be responsible for complying with environmental permits, operational ESMPs, and applicable Sierra Leonean labour and industrial safety laws.

3.4.3.5 Maintenance of Infrastructure

Routine maintenance will be critical to ensuring the long-term functionality of all physical assets developed under the project. Maintenance responsibilities will include:

- Periodic grading and drainage of farm tracks to ensure year-round accessibility;
- Servicing of solar and electrical systems, water supply networks, and wastewater systems at the AIH and ATC;
- Upkeep of storage, processing, and office facilities to meet food safety, security, and structural integrity standards.

Maintenance operations will be coordinated by project implementation units in collaboration with local authorities, cooperatives, and private sector operators, with provisions made in the project's operational budget.

3.4.4 Demolition and Restoration Phase

Though not anticipated within the five-year project timeframe, a final phase may include the demolition of infrastructure and site restoration should the facilities reach end-of-life or be relocated. This will entail:

- Safe decommissioning of the AIH, ATC, and AC, in compliance with applicable health, safety, and environmental standards;
- Restoration of natural vegetation, drainage systems, and landform to prevent long-term ecological disruption;
- Engagement with communities and local authorities to determine appropriate end-use of cleared lands.

Demolition and restoration planning will be incorporated into the project's environmental and social management framework to ensure sustainability and reversibility where necessary.

4 SOCIAL BASELINE

4.1 SOCIO-ECONOMIC BASELINE FOR KAMBIA DISTRICT

4.1.1 Population and Demographics

Kambia District has an estimated population of 408,611 (Statistics SL, 2021 Mid-Term Census), making it one of the more sparsely populated districts in the Northern Western Province. The gender distribution is slightly skewed towards females, with a sex ratio of approximately 94 males per 100 females. Like many districts in Sierra Leone, Kambia has a young population—approximately 42% are below the age of 15, indicating a high dependency ratio and underscoring the need for youth-focused development strategies.

4.1.2 Education

Educational outcomes in Kambia District remain weak, especially in rural chiefdoms where poverty, distance, and early marriage reduce school retention. The literacy rate is estimated at **36%**, lower than the national average of 48.1%. While enrolment in primary education has improved, secondary school completion remains low.

4.1.2.1 Literacy Rates

As of the 2015 Census and 2019 SLDHS, the district's literacy rate was around **36%**, with significant gender and rural-urban disparities. Adult men are more likely to be literate than women.

4.1.2.2 Gender Disparities

There are pronounced gender gaps in educational attainment. According to SLDHS 2019, **59% of women** aged 15–49 in Kambia have no formal education, compared to **31% of men**. Literacy among men in the district stands at **64%**, while for women it is **30%**.

4.1.2.3 Educational Infrastructure

Many schools in the district lack adequate infrastructure such as furnished classrooms, latrines, and learning materials. This limits both access and learning outcomes, particularly for girls.

4.1.3 Health and Access to Services

Health indicators in Kambia are generally below the national average. The district has one government hospital (Kambia Government Hospital), several Community Health Centres (CHCs), and Peripheral Health Units (PHUs) in the chiefdoms. Key health concerns include high maternal and infant mortality, malaria, respiratory infections, and limited access to clean water and sanitation. Health facilities are often understaffed and under-resourced..

4.1.3.1 Maternal Health

- **Maternal Mortality Rate** (national): 717 deaths per 100,000 live births (SLDHS 2019). Kambia is assumed to reflect or exceed this average due to rural health access challenges.
- **Facility-based Births**: Only **58%** of births in Kambia occur in health facilities (SLDHS 2019).

- **Skilled Birth Attendance**: Below national average, partly due to cultural and logistical barriers.

4.1.3.2 Child Health

- **Under-Five Mortality Rate**: Estimated at **130 per 1,000 live births**, higher than national average.
- **Immunization Coverage**: Only **64%** of children aged 12–23 months are fully vaccinated.

4.1.3.3 Nutrition

- **Stunting**: 32% of children under five.
- **Wasting**: 6%.
- **Underweight**: 13%.
  Figures reflect national averages, adjusted for Kambia's rural profile.

4.1.3.4 Disease Prevalence

- **Malaria**: Prevalence in children under five is over **55%**.
- **HIV/AIDS**: Kambia has one of the lowest adult prevalence rates at **0.6%**.

4.1.3.5 Healthcare Access and Infrastructure

- The district has one main government hospital and several CHCs and PHUs.
- **Only 47%** of households are within 5 km of a health facility (DHS 2019).
- **Access to improved drinking water**: 61%.
- **Access to improved sanitation**: 38%.

4.1.4 Livelihoods and Employment

The majority of Kambia's households engage in subsistence agriculture. Employment is predominantly informal, with minimal opportunities in the formal sector. Many youths migrate seasonally in search of labour. Women, especially in rural chiefdoms, are overrepresented in unpaid agricultural labour.

4.1.4.1 Agriculture

Kambia is an important rice and cassava producing district. Samu and Mambolo Chiefdoms are major rice belts due to extensive inland valley swamps. Agricultural productivity remains low due to limited access to extension services, fertilizers, and mechanization.

- **Agriculture households**: 73% of households (2015 Census).
- **Land tenure** is governed by customary law, complicating land access and investment, particularly for women and migrants.

4.1.5 Infrastructure and Basic Services

The district is poorly connected in terms of road infrastructure. Most roads are laterite and become impassable during the rainy season.

- **Electricity** is available in Kambia Town and a few peri-urban areas through solar mini-grids and diesel generators.
- **Water access**: Boreholes and hand-dug wells are common.
- **Sanitation**: Open defecation remains prevalent in remote chiefdoms.
- **Telecommunications**: Mobile coverage is moderate, with limited internet connectivity.

4.1.6 Vulnerable Groups

Women, children, youth, persons with disabilities, tenant farmers and widows face heightened vulnerability. Women's access to land, education, and credit remains limited. Food insecurity is a recurring issue during lean seasons (June–August). Social protection services are minimal.

4.1.7 Cultural and Social Structures

Kambia has a strong tradition of community leadership through paramount chiefs and religious leaders. Ethnic diversity includes Susu, Temne, and Limba, with peaceful inter-ethnic coexistence. Islamic practices dominate, but traditional belief systems are also influential in land, marriage, and dispute resolution.

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

Kambia District reports high levels of gender-based violence.

- **Prevalence of GBV**: Estimated at **70.7%** of women aged 15–49 in the district have experienced some form of GBV (SLDHS 2019).
- Common forms include intimate partner violence, early marriage, and sexual violence.
- There is one Family Support Unit (FSU) office in Kambia Town, but services are limited in rural chiefdoms.

4.1.9 Water and Sanitation

- **Access to improved drinking water**: 61% of households (DHS 2019).
- **Access to improved sanitation**: 38%.
- **Open defecation**: 21% of households.
- Waterborne diseases are common due to poor hygiene and inadequate infrastructure.
- NGOs and government projects have introduced boreholes, but sustainability remains a challenge due to weak community ownership and maintenance.

4.1.10 Waste Management

Solid waste disposal is informal. Households typically dispose of waste through open dumping or burning. No formal municipal waste collection system exists outside Kambia Town. Waste management infrastructure and capacity are severely limited.

4.2 PROJECT COMMUNITIES

In February 2025, a socio-economic baseline survey was conducted in Kychum (Samu Chiefdom) and Kobia and Roanna (Mambolo Chiefdom), three communities targeted by the SAPZ Project in Kambia District. A team of field researchers administered structured questionnaires to a representative sample of 300 respondents. The survey captured key demographic and socio-economic indicators

including age, gender, marital status, occupation, education, ethnicity, health status, access to basic services, and religious affiliation. The resulting dataset provides critical insight into the social dynamics, development needs, and opportunities within the project area.

4.2.1 Age Distribution of Respondents

The age profile of respondents in the Kambia SAPZ project area is predominantly composed of working-age adults. The largest cohort falls within the 30–40 age group, representing 29.8% of respondents. This is followed by the 40–50 age group (23.7%) and the 50–60 group (17.3%). Younger adults aged 20–30 account for 15.3%, while those aged 60–70 and 70–80 constitute 9.3% and 5% respectively.

This distribution suggests a relatively mature, economically active population, with strong potential for engagement in agricultural production and processing activities. The limited representation of youth and elderly respondents highlights the need for targeted youth inclusion strategies and support for aging community members.

Table 1: Age Distribution of Respondents in the Project Area (Kambia)

Age Group (Years)	Number of Respondents	Percentage (%)
20–30	46	15.3
30–40	88	29.8
40–50	71	23.7
50–60	52	17.3
60–70	28	9.3
70–80	15	5.0
Total	**300**	**100.0**

4.2.2 Marital Status

Married individuals constitute the majority of the surveyed population, accounting for 158 (52.7%) respondents. Single individuals were 78 (26%), while divorced and widowed individuals represent 38 (12.7%) and 26 (8.7%) persons respectively. The data reflects strong household-based social structures, with marriage remaining a dominant social institution across the project communities.

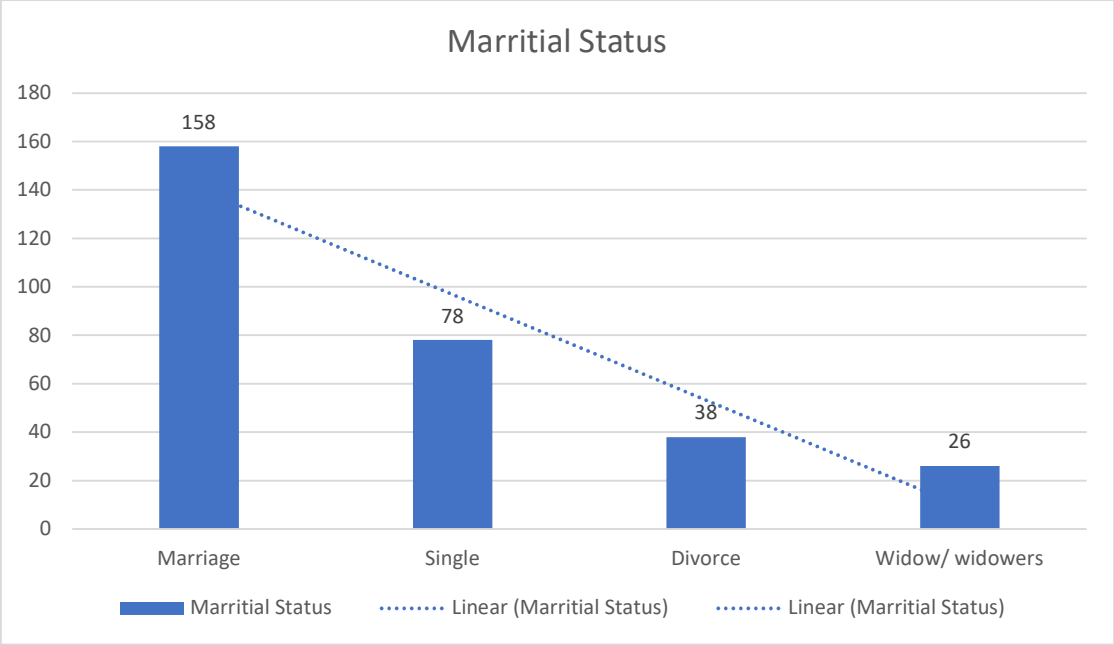


Figure 4: Marital Status of Respondents

4.2.3 Ethnic Composition

The project communities exhibit a rich ethnic diversity, with the Susu ethnic group comprising 40% of the population. Temne and Limba communities follow at 18.1% and 13.1%, respectively. Smaller groups include Mandingo (10.6%), Loko (6.9%), and Fullah (5%).

This multi-ethnic context underscores the importance of culturally inclusive engagement strategies and linguistically accessible project communication.

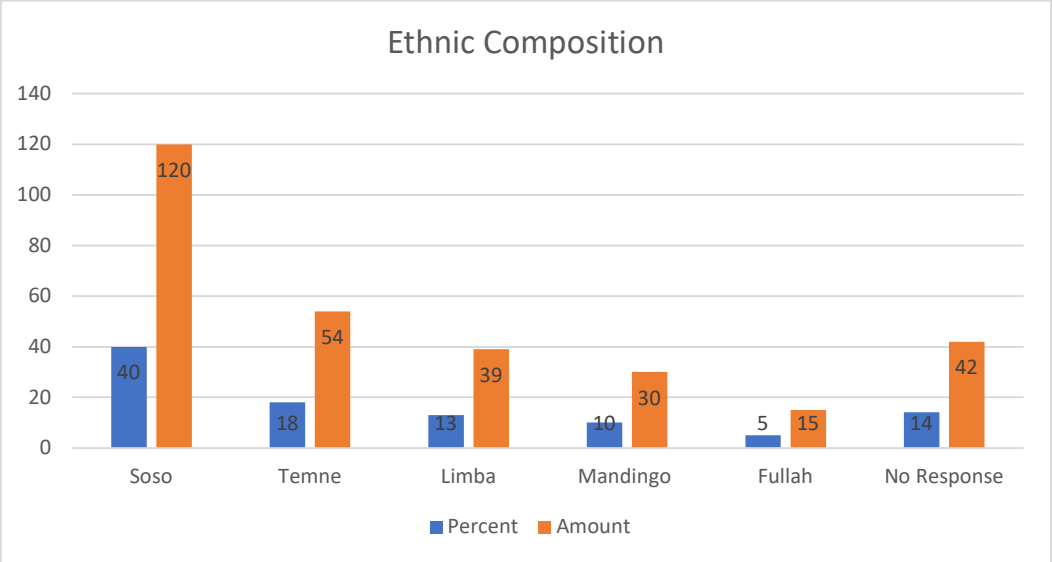


Figure 5: Ethnic Composition of Respondents

4.2.4 Education

The educational profile reveals a predominance of Islamic education, reported by 32.7% (98) of respondents. Educations attainment levels of Junior secondary education was 17.3% (52), senior secondary education 14% (42) are also notable. Primary education achieved by 22.7% (68), while 7.3% (22) reported vocational training. Only 6% of respondents reported attainment of tertiary education.

This pattern suggests moderate formal education levels, with religious and vocational training offering alternative learning pathways. Capacity-building efforts should be tailored accordingly to maximize local participation in SAPZ activities.

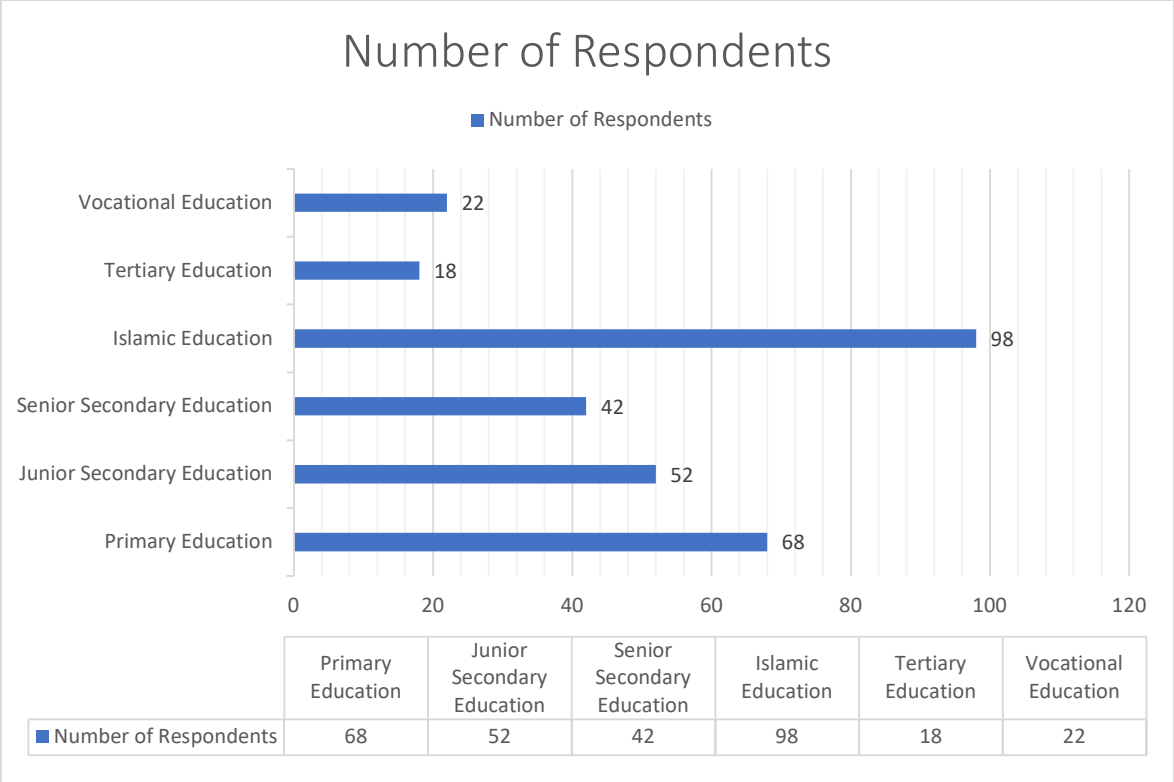


Figure 6: Highest Educational Attainment

4.2.5 Occupation

Farming is the dominant livelihood activity, with 30.7% of respondents engaged in agriculture. Petty trading (21.7%) and public service employment (17.3%) are also significant. Additional occupations include cattle rearing (9.3%), teaching (8.7%), bike riding (8.3%), and security services (4%).

This occupational spread reflects a diversified rural economy with a strong agrarian base, supported by small-scale commerce and public employment. The project's emphasis on rice production, storage, and processing is well aligned with local livelihood patterns.

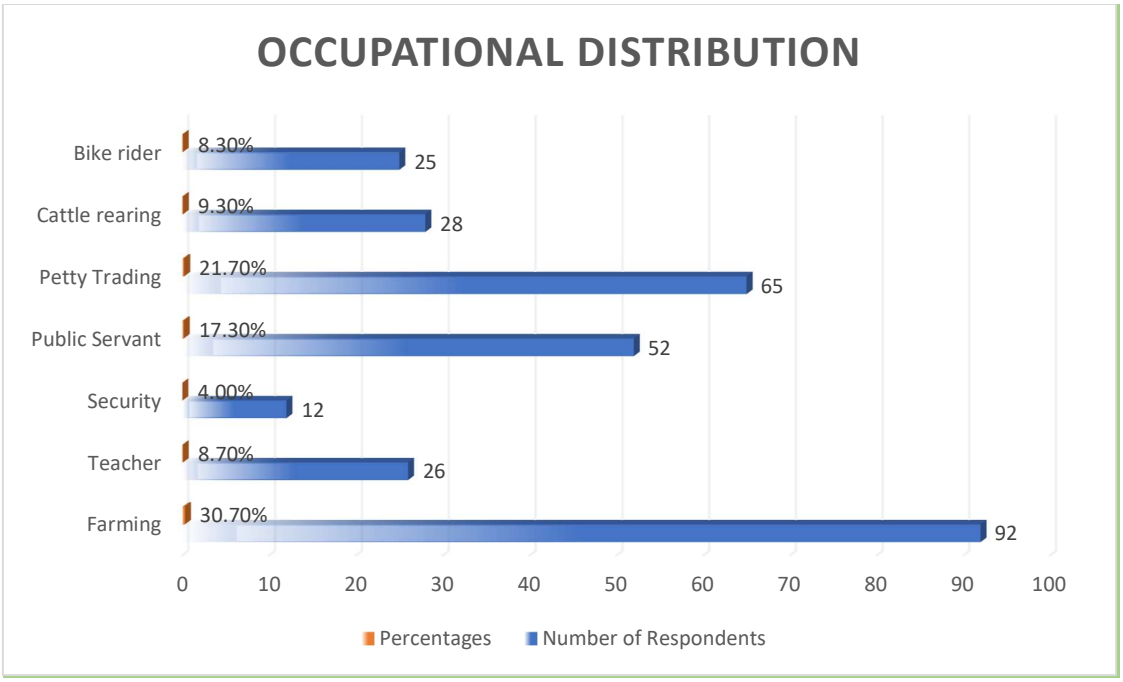


Figure 7: Occupational Distribution of Respondents

4.2.6 Water Sources

Access to water remains a challenge in the project area. Protected wells serve 30.7% of households, followed closely by unprotected wells (27.0%) and swamp water sources (21.7%). River water is used by 19.3% of respondents, while none reported access to piped water.

Table 2: : Sources of Drinking Water

Water Source	Number of Respondents	Percentage (%)
Protected Well	92	30.7
Unprotected Well	81	27.0
Swamps	65	21.7
River	58	19.3
Piped Water	0	0.0
Total	**300**	**100.0**

4.2.7 Sanitation and Waste Disposal

Open defecation and the use of rudimentary pit latrines remain widespread. Rivers and bushes are often used as makeshift toilets, contributing to environmental degradation and disease transmission. Garbage is primarily disposed of through landfill and open burning, both of which carry significant environmental and health risks.

4.2.8 Disease Prevalence

Health data from the SAPZ Project-affected communities in Kambia District reveal a range of common illnesses that reflect environmental exposures, limited healthcare access, and nutritional deficiencies. Malaria remains the most frequently reported health concern. Out of 300 respondents, approximately 80 individuals (26.7%) reported experiencing malaria within recent months, confirming its status as a leading public health challenge in the area. This is consistent with the region's endemic conditions, which include high mosquito breeding activity near swampy areas and stagnant water bodies.

Typhoid fever was reported by around 56 respondents (18.7%), indicating significant exposure to contaminated water sources, inadequate sanitation, and poor hygiene practices. This condition is particularly concerning in communities that rely on unprotected wells, swamps, and rivers for drinking water, as was found to be the case in large segments of the project area.

Generalized body pain was mentioned by 49 respondents (16.3%), often linked to strenuous physical labour in agriculture or underlying untreated infections. These symptoms may be exacerbated by a lack of access to diagnostic and rehabilitative healthcare services.

Hernias were reported by 42 respondents (14.0%). The relatively high prevalence of hernias may be linked to occupational strain, particularly heavy lifting and farm work without the benefit of proper lifting techniques or physical support.

Skin diseases were also identified by 27 respondents (9.0%), with cases ranging from fungal infections to more chronic dermatological conditions. These issues often arise from poor hygiene, limited access to clean water, and environmental exposures.

Kwashiorkor, a severe form of protein-energy malnutrition primarily affecting children, was reported in 14 cases (4.7%). This indicates underlying nutritional deficiencies within vulnerable populations and points to broader concerns about household food security and dietary diversity.

Blindness or severe visual impairment was reported by 11 respondents (3.7%). These cases may be attributable to untreated infections or cataracts.

Elephantiasis, a neglected tropical disease often associated with lymphatic filariasis and transmitted through mosquito bites, was identified by 7 individuals (2.3%). While less common, its presence signifies continued exposure to disease vectors and underscores the importance of preventive health campaigns.

Table 3: Prevalent Diseases in Project Communities (Kambia)

Disease/Condition	Approx. Number of Respondents	Prevalence (%)
Malaria	80	26.7
Typhoid Fever	56	18.7
Body Pains	49	16.3
Hernia	42	14.0
Skin Diseases	27	9.0
Kwashiorkor	14	4.7
Blindness	11	3.7
Elephantiasis	7	2.3
Total Sample Size	**300**	**100.0**

4.2.9 Residence Duration

The majority of respondents (73%) have lived in their communities for over 20 years, including 29.3% residing for 21–30 years, 20.7% for 31–40 years, and 14% for more than 41 years. Shorter-term residents (1–10 years) make up 13%, indicating limited but notable recent migration.

This pattern points to a stable and well-rooted population with strong local ties, which may facilitate community-led project ownership and long-term sustainability.

Table 4: : Duration of Residence in the Project Area

Years of Residence	Number of Respondents	Percentage (%)
1–10	39	13.0
11–20	69	23.0
21–30	88	29.3
31–40	62	20.7
41+	42	14.0
Total	**300**	**100.0**

4.2.10 Religious Affiliation

Islam is the dominant faith in the project area, with 56% of respondents identifying as Muslim. Christians account for 29%, and 15% reported adherence to other beliefs. This religious landscape should inform the design of culturally sensitive project activities and outreach strategies.

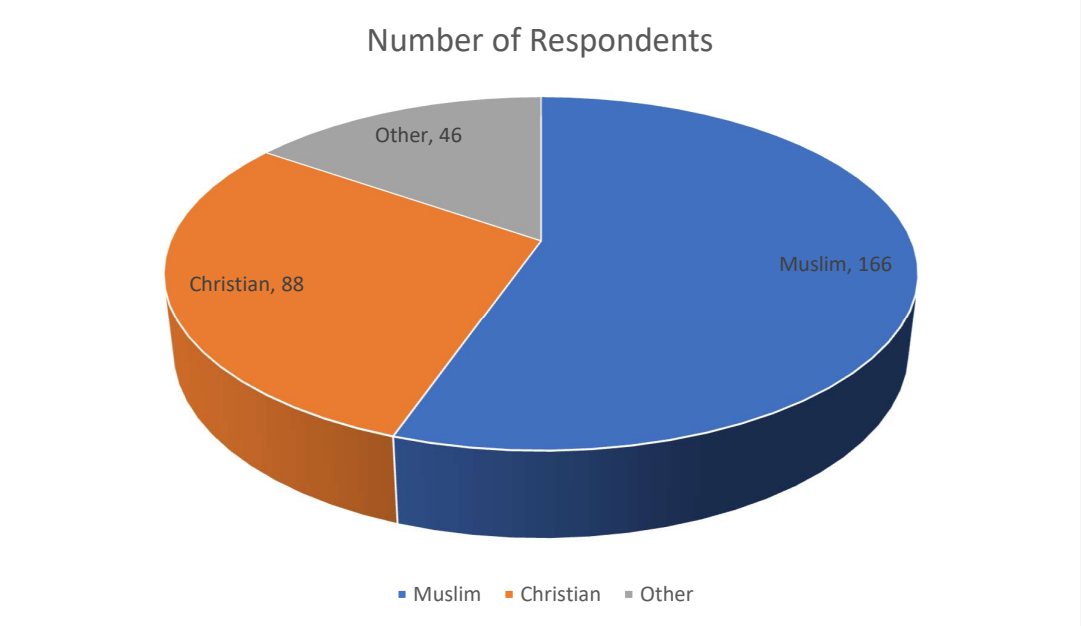


Figure 8: Religious Affiliation of Respondents

5 STAKEHOLDER ENGAGEMENT

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 tenant 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, tenant farmers, 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, especially for tenants and renters	SEP includes targeted engagement for tenant 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

Date	24-Oct-25 **Time:** 11:40 **Venue:** Chief Barray, Mambolo, Kambia
Chiefdom/Community	
ESIA Team & Key Persons Met	**Introductory Project Meeting**: Team containing staff from the Ministry of Agriculture including the Directors of Extension & National Development Partner Program Coordinating Office, Environmental and Climate Smart Specialist, District Agriculture Officer (Port Loko), etc. Team also included staff of the AfDB. **Key Persons Met** Mambolo Town Chief, Sierra Leone Produce Marketing Company (SLPMC) representative, Land Owning Families; farmers. Also present were about forty (40) community members, including District Elders, Women and Youths, Farmers, Imams, Person with Disability.
Issues presented	• Background, importance and components of the SAPZ Project; • The facilities that will be constructed by the project – including aggregation centers and agro-processing hubs; • The need for stakeholder acceptance of and support for successful implementation of the SAPZ Project; • Potential Environmental and Social risks and impacts that may be applicable by the project • The need for meaning stakeholder engagement and participation for improved project outcomes • The mission team provided opportunities for stakeholders to bring voice out issues of interest or concerns to them.
Responses and Discussions	**Town Chief, Mambolo;** • On behalf of the Kambia District and Mambolo Town, he welcomed the news about the SAPZ Project with delight, and expressed their willingness and readiness to fully support its preparation and implementation; • He requested the MAFS to ensure active involvement of stakeholders, in the planning and implementation of the SAPZ Project. This he said is crucial for stakeholder ownership of the project; • Chief requested the project to ensure that employment opportunities are provided to their youths and women; • He called for timely supply of inputs (seeds, fertilizers, tractors, etc) to farmers to ensure maximum outputs (rice production to make SAPZ stand out) • He urged the Sierra Leone Produce Marketing Company (SLPMC) to work with district and community stakeholders to address land ownership and agreement legacy issues and processes for the site currently used by the company. • He requested for further engagement with his people for clarity on how the project will benefit their communities, as well as their contributions to the project;

	• To ensure improved production, he requested for the project to consider facilitating access to improved climate information for timely planning and improved yields. • He concluded that any land acquisition process on the SAPZ must comply with applicable land tenure systems, and active participation of concerned parties; **Representative, Sierra Leone Produced Marketing Company (SLPMC)** • That SLPMC bought the land from land owners • That the Paramount Chief of Mambolo was part of the land sales process • That his company is willing and ready to fully support and address any legacy issue relating to the land in question. **Representative, Land Owning Family** • That the land occupied and/or being used by the SLPMC was sold with condition, that the land owners should be fully aware and be involved in any transfer process. • That the land-owning family is open to supporting development programs, including the SAPZ Project
Date	12-Feb-25 **Time:** 12:17 **Venue:** Chief Barray, Kychum, Kambia
Chiefdom/Community	Kychum, Samu Chiefodm, Kambia
ESIA Team & Key Persons Met	**ESIA Team:** Environmental and Social Impact Assessment (ESIA) Consultant; Environmental and Social Safeguards Specialist assigned from the Sierra Leone Rice Agro-Industrial Cluster Project MAFS; Environmental and Social Safeguards Consultant, assigned from the Smallholder Commercialization and Development Project MAFS.
Issues presented	MAFS provided a comprehensive overview of the proposed Sierra Leone Special Agro-Industrial Processing Zone (SAPZ) Project. It was 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). MAFS further noted that the visit of the mission 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. It was 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. 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. The Consultant 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. The team ended by calling 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 and Discussions	**Wife, of Paramount Chief of Mambolo:** • On behalf of her husband, the Paramount of Mambolo Chiefdom, she pledged the total support and commitment of his people to support the preparation and implementation of the proposed SAPZ Project. As an agricultural rich area, she emphasized the potential for SAPZ Project, to address the ever-increasing issue of food insecurity in Sierra Leone. • She confirmed to the visiting team that a land, which she believes is adequate for construction of facilities on the SAPZ could be voluntarily donated to the MAGFS, for use by the project; • She promised to inform the Town Chief about the deliberation held and to help mobilize further support to the proposed project. She expressed gratitude to the AfDB and the Government of Sierra Leone (GOSL) for selecting their town for implementation of the proposed SAPZ Project. • She requested the MAFS, through the SAPZ Project to ensure employment opportunities are provided for their women and youth population. • Also, she requested for further support for the provision of basic social services. This includes support to health, security, water, education and security structures in the communities. • Most importantly, she pleaded for the GoSL to consider constructing the road leading to Kychum to ensure that Kychum Community is accessed all year round. This she said will help greatly boost production and supply processes, including transporting and sales of agricultural produce.

	• She concluded by requesting for further consultations with other members of the Kychum and communities that may be affected by the SAPZ Project for access to improved information, and facilitate active participation in the design and implementation of the project. **Youth Representative,** described the SAPZ as a project that would benefit Kychum, Kambia and Sierra Leone. On behalf of the youths of Kychum, he pledged their willingness and readiness to fully support the preparation and implementation of the SAPZ Project. He added that they will work with project stakeholders to ensure that donated land is fully access and utilized by the project. He expressed their gratitude to the Government of Sierra Leone, the African Development Bank (AfDB), and the project consultants for the SAPZ Project, adding that they look forward for improved job opportunities and their socio-economic transformation expected to be associated with such opportunities. He concluded by stressing the need for the road network between Mambolo and Kychum to be improved by the GoSL, to facilitate access to and from their community, throughout the year, as opposed to only the dry season, as it is now. **A community stakeholder:** stated that the SAPZ would boost rice production in their communities, improve livelihoods at household levels, and help promote the socio-economic conditions of the community.
Date	13-Feb-25 **Time:** 11:40 **Venue:** Chief House, Robana, Kambia
Chiefdom/Community	Robanna Community, Kambia
ESIA Team & Key Persons Met	**ESIA Team: ESIA Team:** Environmental and Social Impact Assessment (ESIA) Consultant; Environmental and Social Safeguards Specialist assigned from the Sierra Leone Rice Agro-Industrial Cluster Project MAFS; Environmental and Social Safeguards Consultant, assigned from the Smallholder Commercialization and Development Project MAFS.. **Key Persons Met**
Issues presented	Same as presented at Kychum, Kambia
Responses and Discussions	Town Chief, Robana: He welcomed the ESIA team and expressed his strong support for the proposed SAPZ Project. He cited numerous benefits that the project may bring to his community, chiefdom, district and Sierra Leone as a whole. The Chief assured the mission team that his community has already identified about 50 acres of land, for use by the SAPZ Project if required. He confirmed that majority (over 80%) of his people are involved into agriculture and animal rearing. As such, access to and use of donated land will not negatively impact on anyone's livelihood or well-being. He confirmed that the land is secondary forest, previously used for agriculture and other uses. As such, the land allocated for SAPZ would not infringe on any ecologically sensitive areas. Moreover, he confirmed that none of his community members will be looking towards any financial compensation from the project or MAFS / GoSL as the wild fruits were not planted by anyone, nor does anyone depend on them for livelihood or socio-economic gains. He advocated for improved job opportunities for women and youths, whilst hoping that the proposed SAPZ Project would position his community as a center for improved rice production in the country. On behalf of his people, he expressed hope that the SAPZ Project would commence as soon as possible. He concluded by requesting for further consultations with his people, as well as documentation of the donated land to ensure smooth implementation of the SAPZ Project.

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.

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

Kambia District experiences a tropical monsoon climate, with an average annual rainfall in excess of 2,500mm, 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 & GEOLOGY

6.2.1 Topography

Kambia District is situated in the coastal plains of northwestern Sierra Leone, featuring a generally low-lying and gently undulating terrain. The elevation ranges from near sea level along river estuaries and swamps, to approximately 200 metres above sea level in inland areas. The district's topography is primarily composed of:

- Inland valley swamps (IVS) and seasonal floodplains, which support rice cultivation and serve as natural water retention zones;
- Low hills and rolling uplands, particularly in the interior chiefdoms;
- Extensive river systems such as the Great Scarcies (Kolenté) River and the Little Scarcies (Kaba) River, which define natural drainage basins and influence landform development.

This subdued topography facilitates agricultural use but also poses risks related to seasonal waterlogging, flooding, and erosion, particularly in unprotected areas.

6.2.2 Geology

The geological structure of Kambia District is part of the broader West African Craton, with surface geology comprising mainly Precambrian Basement Complex rocks, overlain in some areas by younger sedimentary and alluvial deposits. The main geological formations include:

- Granites and gneisses of the Precambrian basement, found predominantly in upland and interior areas. These rocks are generally stable and well-drained, forming the backbone of higher ground.
- Tertiary and Quaternary sediments, particularly along river valleys and low-lying plains, comprising clay, sand, silt, and gravel. These unconsolidated sediments are associated with alluvial processes and are often targeted for small-scale sand and gravel extraction.
- Ferrallitic and lateritic crusts, which occur on plateaus and upland zones, resulting from prolonged weathering in tropical conditions. These soils are often nutrient-poor and may form hardpans that affect root penetration and drainage.

The combination of soft sedimentary deposits in lowlands and hard basement rocks in uplands has important implications for foundation stability, erosion control, and land suitability for infrastructure development.

6.3 SOILS

6.3.1 Soil Characteristics

Soil samples were collected from two locations within the project area in Kambia District. Kychum in Samu Chiefdom and Kobia in Mambolo Chiefdom. These sites correspond to the Inland Valley Swamps (IVS) designated for agricultural development under the SAPZ. The samples were analyzed for key physical and chemical properties to assess fertility, structure, and general suitability for rice cultivation and other agricultural activities.

Soil pH and Electrical Conductivity (EC): Soils across both locations exhibited pH values ranging from 6.61 to 6.89, placing them within the slightly acidic to neutral range—ideal for most crop growth. Electrical Conductivity (EC) values ranged from 699 to 720 µS/cm, which indicates high salinity levels. Such salinity may affect crop nutrient uptake and lead to poor yields if correct varieties of rice are not chosen.

Texture: All samples analysed fall into the sandy clay loam category. This texture is generally suitable for agriculture, especially during the dry season, due to its moderate water-holding capacity and ease of cultivation.

Soil Organic Carbon and Nitrogen: The soils contained moderate levels of organic carbon (2.40–2.83%), suggesting some degree of organic matter accumulation. Total nitrogen levels were low (0.04–0.08%), pointing to a need for external nutrient inputs. Organic matter management through composting, green manures, and leguminous cover crops is recommended to enhance nitrogen levels and overall soil health.

Phosphorus and Potassium: Phosphorus availability was rated low in both locations, likely due to the binding effects of soil acidity and organic matter. Potassium levels were also low (approx. 0.02 cmol/kg), suggesting nutrient depletion and potential leaching. Addressing these deficiencies will require targeted applications of both organic and inorganic fertilizers.

Table 5: Soil test results

Town	Sample Type	pH	EC(µS/cm)	% Sand	% Silt	% Clay	%C	%N	P(mg/kg)	K(cmol/kg)
Kobia	IVS	6.61	699	46	28	26	2.4	0.08	0.46	0.12
Kychum	IVS	6.89	720	48	24	28	2.83	0.04	0.52	0.02

6.4 HYDROLOGY AND WATER RESOURCES

Kambia District's hydrology is shaped by its network of rivers, streams, and wetlands, which play a vital role in supporting agriculture, fisheries, and domestic water use. The district is traversed by several watercourses, including the Great Scarcies (Kolenté) River along its northern boundary and the Little Scarcies (Kaba) River to the south. It should be noted that the Great Scarcies separate Samu and Mambolo Chiefdoms, with the likely positions of the ATC (Kychom) and AIH (Mambolo Town) being on opposite banks of the river. These rivers are seasonally influenced, with higher flows during the May–October rainy season and reduced discharge in the dry months. The area's flat to gently undulating terrain promotes the formation of floodplains and swamps, particularly in low-lying areas near the rivers, making it suitable for rice cultivation and other water-dependent livelihoods.

6.4.1 Water Analysis for the SAPZ Project Sites in Kambia District

Water samples were collected from a stream in Kobia, Mambolo Chiefdom and a well in Kychum, Samu Chiefdom. Parameters analysed included pH, EC, turbidity, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), and temperature.

pH and EC: Water pH values ranged from 5.13 (stream) to 6.84 (well), placing the stream water in the acidic range and the well water within acceptable limits for agricultural use. EC values were moderate and within acceptable thresholds, indicating no immediate salinity issues in the water used for irrigation.

Turbidity and TDS: The stream water in Samu showed elevated turbidity (12.95 NTU), surpassing WHO guidelines (<5 NTU), potentially due to erosion and runoff. Turbidity for the Mambolo Chiefdom sample was 3.95. TDS values remained within WHO recommended limits (<500 mg/L), suggesting no significant contamination from dissolved solids.

COD: Chemical Oxygen Demand values for both water bodies (39.4 and 45.0 mg/L) were within permissible limits (250–500 ppm), indicating low organic pollution.

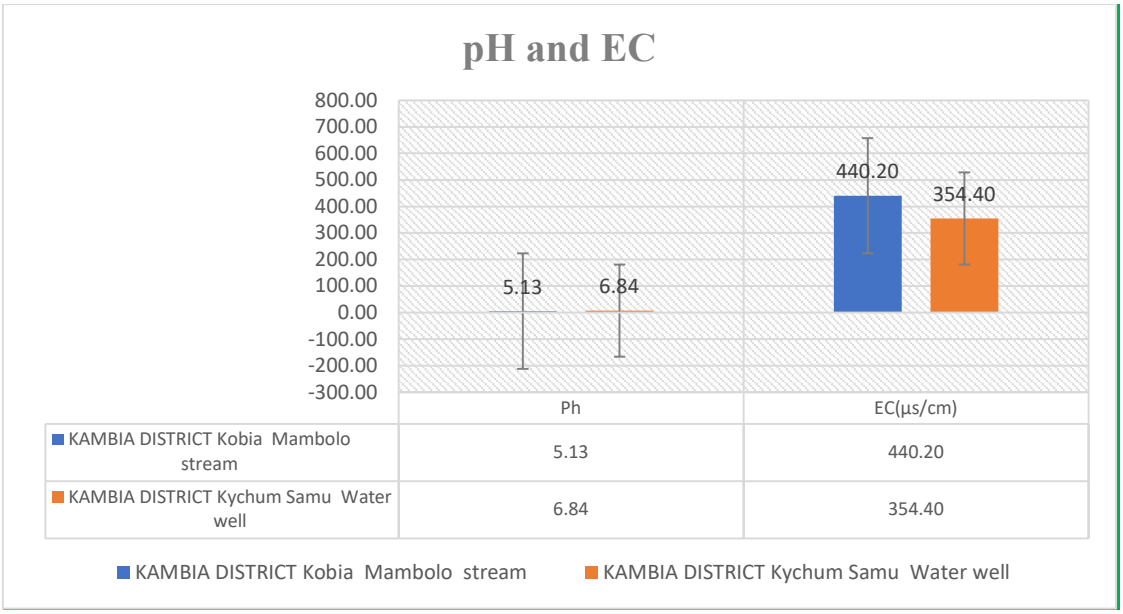


Figure 9: pH and EC Results

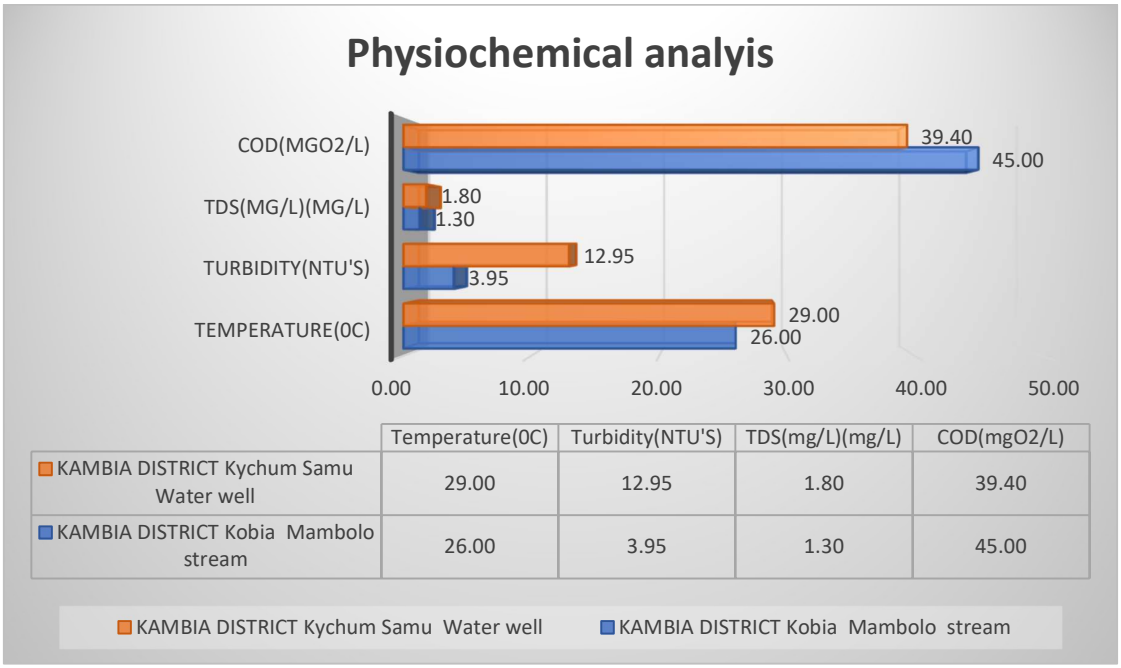


Figure 10: Physiochemical Analysis

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. There are not legally protected areas if high biodiversity influence in the project areas.

6.5.1 Habitat Classes and Ecosystem Services

6.5.1.1 Habitat Classes

The Kambia SAPZ project spans Samu and Mambolo Chiefdoms, covering production support areas, an Agricultural Transformation Centre (ATC) in Kychum, and an Agro-Industrial Hub (AIH) in Mambolo Town. Habitat classes in the project area are shaped by a combination of anthropogenic and natural land cover. Key habitat classes include:

Habitat Class	Description
Disturbed Agricultural Land	Dominated by upland and lowland rice farms, cassava, and other food crops.
Fallow Bush/Shrubland	Secondary regrowth areas with mixed shrubs and grasses, following farm fallow.
Riverine Wetlands	Found along rivers like the Great Scarcies and minor tributaries; include swamp rice fields and natural marsh.
Riparian Forest Fragments	Narrow forest corridors along rivers; some degradation due to wood harvesting.
Mangrove Forests	Present in river estuaries and tidal flats near coastal Mambolo; ecologically important.
Savanna Woodland	Open-canopy woodland found in drier upland areas with scattered trees and grasses.
Settlements and Built-up Areas	Villages, roadways, small trading centers, and infrastructure under development.

Note: Habitat quality is variable, with some ecologically sensitive pockets near water bodies, while upland sites are highly modified due to subsistence agriculture.

6.5.2 Ecosystem Services of the Project Areas

The project areas provide ecosystem services in terms of ecology, economics and social servces:

- **Food production:** Rice, cassava, vegetables, and fruits from farms and wetlands.
- **Water supply:** Streams and wells used for domestic and irrigation needs.
- **Fuelwood and charcoal:** Sourced from fallow and bush areas.
- **Fisheries:** Local fishing in rivers and seasonal wetlands, especially during rainy seasons.
- **Medicinal plants:** Harvested from shrublands and riparian zones.
- **Flood regulation:** Wetlands and mangroves buffer flooding, especially near riverbanks and coastal zones.
- **Water purification:** Wetland vegetation filters sediment and agrochemical runoff from rivers and streams.
- **Microclimate regulation:** Tree belts and mangroves help moderate local temperature and humidity.
- **Soil fertility:** Sustained by traditional fallow cycles and organic matter in wetlands.
- **Pollination:** Provided by insects, especially bees, for vegetable and fruit crops.
- **Spiritual and cultural heritage:** Sacred groves, community forests, and riverine areas hold traditional significance.
- **Recreational/aesthetic value:** Limited but important for community identity and ceremonies.

6.5.3 Avifauna

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 comprehensive avifaunal assessment was carried out in February 2025 across three SAPZ project communities in Kambia District, Kychum, Robanna, and Kobia. The survey aimed to evaluate bird species diversity, migratory patterns, and conservation status to inform biodiversity impact mitigation under the ESIA process.

6.5.3.1 Methodology

The assessment employed a combination of line transects and point counts along existing roads and footpaths within the study areas. Visual and acoustic detections were used to identify species, supplemented by limited mist-netting in less disturbed sites. Fieldwork was conducted from early morning through late afternoon, with some nocturnal observations to capture less active or vocal species. Standard ornithological taxonomies and naming conventions were followed.

6.5.3.2 Key Findings

A total of 82 bird species were recorded, accounting for 14% of Sierra Leone's documented national avifauna. Of these, 60 were native residents and 9 were intra-African migrants. Nglobally threatened species were confirmed during this survey.

While species diversity in Kambia was lower than in protected zones like Loma Mountains or Bumbuna, this is likely influenced by seasonal timing, survey duration, and ongoing land use pressures such as agriculture and charcoal production.

Table 6: Bird recorded within the project areas

LIST OF BIRDS RECORDED WITHIN THE PROJECT DEVELOPMENT AREA (PDA)			
IUCN Status: CR – Critically Endangered; VU – Vulnerable; LC – Least Concern; AM Residency Status: 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	
Ciconia episcopus	Woolly-necked Stork (LC)	x	AM
ANATIDAE			
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	AM
Streptopelia semitorquata	Red-eyed Dove (LC)	x	R
MUSOPHAGIDAE			
Corythaeola cristata	Great Blue Turaco (LC)	x	R
Psithacus timneh	Timneh Parrot (VU)	x	
CUCULIDAE			
Oxylophus levaillantii	Levaillant's Cuckoo (LC)	x	AM
Chrysococcyx cupreus	African Emerald Cuckoo (LC)	x	R
Chrysococcyx klaas	Klaas's Cuckoo (LC)	x	AM
Chrysococcyx caprius	Didric Cuckoo (LC)	x	AM
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
Megaceryle maxima	Giant Kingfisher (LC)	x	R
MEROPIDAE			
Merops albicollis	White-throated Bee-eater (LC)	x	AM
Merops persicus	Blue-cheeked Bee-eater (LC)	x	

CORACIIDAE			
Eurystomus gularis	Blue-throated Roller (LC)	x	R
Eurystomus glaucurus	Broad-billed Roller (LC)	x	AM
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 daurica	Red-rumped Swallow (LC)	x	AM
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
MONARCHIDAE			
Terpsiphone rufiventer	Red-bellied Paradise Flycatcher (LC)	x	R
PLATYSTEIRIDAE			
Platysteira cyanea	Common Wattle-eye (LC)	x	R
NECTARINIIDAE			
Anthreptes gabonicus	Brown Sunbird (LC)	x	
Cyanomitra olivacea	Olive Sunbird (LC)	x	R
Hedydipna collaris	Collared Sunbird (LC)	x	R
Cinnyris venustus	Variable Sunbird (LC)	x	R
Cinnyris cupreus	Copper 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			
Malimbus scutatus	Red-vented Malimbe (LC)	x	R
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
Estrilda melpoda	Orange-cheeked Waxbill (LC)	x	R
Spermestes cucullatus	Bronze Mannikin (LC)	x	R

6.5.4 Vegetation

6.5.4.1 Overview

The vegetation within the SAPZ project area in Kambia District represents a dynamic and heterogeneous mosaic of ecological communities shaped by climatic gradients, seasonal flooding, and intense human activity. The dominant vegetation types include farm bush, early-stage secondary forest regrowth, grassland savanna, wetlands, mangrove ecosystems, and riparian corridors. These assemblages reflect the impacts of shifting cultivation, timber extraction, and population pressure, leading to landscape-level transitions from forested zones to fragmented and degraded habitats.

Tree canopy cover was generally low, typically under 5%, with sporadic mature trees and a dense understory of fast-growing herbs and shrubs. Frequent anthropogenic fires, primarily for charcoal production and land clearance, have suppressed forest regeneration and promoted a persistent state of early successional vegetation. Observed patterns suggest an ecological system under pressure, with limited capacity for natural forest succession under current land-use intensities.

6.5.4.2 Survey Methodology

Vegetation assessments were conducted in February 2025 using a multi-scale methodology involving systematic random plot sampling (20x20m plots), line transects, and walk-through surveys across three SAPZ project communities: Kychum, Robanna, and Kobia. All vascular plants encountered were recorded, with species identification completed to the lowest taxonomic level possible. Special attention was given to canopy species, regeneration status, and species of conservation concern. Ethnobotanical data was gathered via semi-structured interviews and focus group discussions to document traditional uses and local knowledge of plant species.

6.5.4.3 Kychum Village

In Kychum Village, located in Samu Chiefdom, a vegetation assessment was conducted as part of the rice project feasibility study. The survey focused on the riparian vegetation along the identified river system to evaluate the ecological condition and anticipate potential impacts of development. Findings indicate that the site remains ecologically robust, with limited disturbance observed in the riparian zone. Although sections of the inundated valley swamp (IVS) have been cleared for rice cultivation, the riparian corridor itself has largely retained its natural structure.

The dominant species observed in this area was *Pandanus candelabrum*, accompanied by a variety of other important plant species that contribute to local ecosystem integrity. These include *Cleistopholis patens*, *Bambusa vulgaris*, *Myrianthus arboreus*, *Pterocarpus santalinoides*, *Berlinia confusa*, *Uapaca guineensis*, *Alchornea cordifolia*, and *Cathormion altissimum*. The site also supports elephant grasses.

6.5.4.4 Robanna Village

The proposed project site in Robanna Village, located in Mambolo Chiefdom, is situated within a regenerating forest landscape. The area is dominated by young trees at the pole stage, with forest cover estimated at less than five percent. Minimal disturbance has been recorded, likely influenced by the site's proximity to a sacred grove. The forest appears to be in an early successional stage, which is an important factor in understanding the existing baseline conditions.

The site features *Bambusa vulgaris* along with a range of commonly occurring species such as *Elaeis guineensis*, *Diospyros heudelotii*, *Anthocleista vogelii*, *Melicia regia*, *Anthonotha macrophylla*, *Cleistopholis patens*, and *Dialum guineensis*. Tree diameters at breast height (DBH) are generally below 30 cm, indicating the young age of the woody vegetation. A Sorensen's similarity index of 65% between survey plots suggests moderate homogeneity in species composition across the site.

The understory is rich in herbaceous species, including *Tridax procumbens*, *Silax* species, *Geophila obvallata*, *Sida rhombifolia*, *Cissus producta*, *Cissus diffusiflora*, and *Scleria barteri*, which is a dominant component. Additional understory flora identified by local field guides—drawing on indigenous ecological knowledge—included *Ageratum conyzoides*, *Solanum torvum*, *Mussaenda afzelii*, *Brillantaisia nitens*, *Diospyros heudelotii*, *Uvaria chamae*, *Vangueriopsis discolor*, *Alchornea cordifolia*, and *Scleria barteri*. This detailed floristic record provides a valuable reference point for assessing future environmental change or impact.

6.5.4.5 Kobia Village

In Kobia Village, located in Mambolo Chiefdom, a vegetation survey was carried out as part of the SAPZ Rice Agriculture Project assessment. The site exhibits a mix of plant species representative of secondary growth and pioneer communities. Common tree species recorded include *Anthocleista vogelii*, *Diospyros heudelotii*, *Cissus afzelli*, *Manniophytum fulvum*, *Abrus precatorius*, and *Smilax krausina*.

Typical pioneer species observed in the area were *Dichrostachys glomerata*, *Harungana madagascariensis*, *Nauclea latifolia*, *Alchornea cordifolia*, *Trema guineensis*, and *Elaeis guineensis*, along with *Anisophyllea laurina*. These species suggest a transitional ecological setting with areas of forest regrowth.

In zones exhibiting more visible regrowth, common herbs included *Scleria barteri*, *Tridax procumbens*, *Geophila obvallata*, and *Sida rhombifolia*. Key shrubs such as *Salacia senegalensis*, which is noted for its presence in local markets, and *Alchornea cordifolia* were also recorded. The vegetation structure in Kobia reflects a recovering ecosystem with both ecological and socio-economic relevance.

6.5.4.6 Species of Conservation Concern

No critically endangered or endangered floral species were recorded within the surveyed areas. However, two Vulnerable species, Brachystegia leonensis and Terminalia Ivorensis were documented and are known to be under increasing pressure from selective logging and land-use change. In addition, numerous species identified in the field are either listed as Least Concern (LC) or remain Not Assessed under the IUCN Red List, warranting further investigation.

Beyond conservation status, several species were noted for their high ethnobotanical value, particularly for construction, traditional medicine, and wild food. These include *Uapaca guineensis*, *Berlinia confusa*, *Dialum guineensis*, and *Cleistopholis patens*, which are culturally and economically significant to local livelihoods.

Table 7: 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

No.	Scientific name	Family	Use
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
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

No.	Scientific name	Family	Use
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
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

No.	Scientific name	Family	Use
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
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

6.5.4.7 Vegetation Distribution and Ecological Implications

Vegetation distribution patterns in Kambia reveal widespread ecological fragmentation, driven primarily by short fallow agricultural cycles (2–4 years) and population expansion. This has resulted in incomplete forest regeneration and dominance of weedy or fast-colonizing species such as *Scleria barteri*, *Cyperus diffusus*, and *Imperata cylindrica*. These trends diminish both floristic diversity and habitat quality, hindering the return of mature forest species and their associated fauna.

Low-lying zones are dominated by mangrove and swamp vegetation, notably *Avicennia nitida* and *Rhizophora racemosa*. These systems are vital for regulating local hydrology, supporting fisheries, and buffering against erosion and should be prioritized for protection.

The broader landscape within the SAPZ project area is undergoing rapid ecological transition. Vegetation succession is truncated, species richness is declining, and key ecological services are at risk. These conditions necessitate careful planning to ensure the environmental sustainability of project interventions.

6.5.5 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 Kambia District. The study employed a combination of direct transect surveys, camera trap deployment, and community focus group discussions to determine species presence, habitat associations, and conservation significance across mangroves, riparian forests, raphia swamps, secondary forest regrowth, and cultivated areas.

6.5.5.1 Mammals

Field surveys recorded a moderately diverse assemblage of terrestrial mammals dominated by species classified as Least Concern by the IUCN Red List. A total of 25 mammal species were identified

through direct sightings, camera trap records, and community consultations. These included the Black Duiker (Cephalophus niger), Brush-tailed Porcupine (Atherurus africanus), Giant Pouched Rat (Cricetomys spp.), Marsh Cane Rat (Thryonomys swinderianus), African Civet (Civettictis civetta), Bushbuck (Tragelaphus scriptus), and Maxwell's Duiker (Philantomba maxwellii).

Primates were commonly observed, with Grivet Monkey (Cercopithecus aethiops), Campbell's Monkey (Cercopithecus campbelli), Lesser Spot-nosed Monkey (Cercopithecus petaurista), and Senegal Galago (Galago senegalensis) confirmed. Other small carnivores included the Common Genet (Genetta genetta), Common Cusimanse (Crossarchus obscurus), and Long-snouted Mongoose (Herpestes naso). The presence of large-bodied species such as the Giant Forest Hog (Hylochoerus meinertzhageni) and Red River Hog (Potamochoerus porcus) was also confirmed through camera trap evidence and local knowledge.

The survey also recorded indirect evidence of several species through feeding remains, trails, calls, and dung. Notably, Yellow-backed Duiker (Cephalophus silvicultor) was detected through tracks and dung along remote transects, although it was not visually confirmed.

Hunting pressure is widespread across the project area. Community members reported the use of snares, dogs, and in some cases firearms for hunting, primarily for bushmeat consumption and trade. Shell casings were found along certain transects, indicating active hunting despite public denials of gun use. This pressure likely contributes to low population densities of more sensitive species.

6.5.5.2 Reptiles

Reptile diversity was low. The Nile Monitor (Varanus niloticus) was the only reptile species directly confirmed through camera trap footage. This semi-aquatic species is typically associated with riparian and swamp environments, consistent with the raphia swamps and IVS systems found within the project area. No threatened reptiles were recorded.

6.5.5.3 Conservation Significance

All species confirmed through field surveys and camera traps were classified as **Least Concern** under the IUCN Red List, with the exception of Black-and-white Colobus (Colobus spp.), which is considered Vulnerable. This species was acoustically detected during transects but not visually confirmed.

Despite anthropogenic pressures from agriculture, logging, and hunting, the project area retains ecological value, supporting a range of forest-dependent and generalist mammal species. Continued habitat degradation may further erode this diversity, highlighting the need for targeted biodiversity conservation measures and ecological monitoring during project implementation.

Larger and more elusive species such as Leopard (*Panthera pardus*), Tree Pangolin (*Phataginus tricuspis*), and Western Chimpanzee (*Pan troglodytes verus*) were mentioned during community focus groups as species older hunters historically encountered or have knowledge of but haven't seen in the last few decades.

Table 8: Fauna 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	Kychum Kobia	2days in each Community	3
Black Duiker	*(Cephalophus niger)*	LC			1
Gaint Forest Hog	*(Hylochoerus meinertzhageni)*	LC	Kychum Robanna	2days in each Community	3

Giant Pouched Rat	*(Cricetomys spp.)*	LC	Kychum Kobia Robinna	2days in each Community	9
Marsh Cane Rat	*(Thryonomisswinderianus)*	LC	Robanna Kobia	2days in each Community	2
Brush-tailed Porcupine	*(Atherurusafricanus)*	LC	Kychum Kobia	2days in each Community	10
Striped Ground Squirrel	*(Xeruserythropus)*	LC	Kychum Kobia and Robanna	2days in each Community	6
Fire-footed Rope Squirrel	*(Funisciuruspyrropus)*	LC	Kychum Kobia	2days in each Community	3
Bushbuck	*(Tragelaphusscriptus)*	LC	Robinna Kobia	2days in each Community	2
Red River hog	*(Potamochoerus parcus*	LC	Robanna	2days in each Community	1
Maxwell's Duike	*(Varanusniloticus)*	LC	Kychum Kobia	2days in each Community	2
African Civet	*Civettictis civetta*	LC	Kychum Kobia	2days in each Community	4
Common genet	*Genetta genetta*	LC	Kychum Kobia and Robinna	2days in each Community	3
Common Cusimanse	*(Galagosenegalensis)*	LC	Kychum Kobia	2days in each Community	2
Long-snouthed mongoose	*(Atherurusafricanus)*	LC	Kychum Kobia and Robinna	2days in each Community	5
Tambourine Dove	*(Turturtympanistria)*	LC	Kobia	2days in each Community	1
Blue-sported wood dove	*(Turturbrehmeri)*	LC	Kychum Kobia	2days in each Community	3

Table 9: Species mention in focus group discussions

Common name	Scientific name	IUCN status
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
Grivet monkey	(Cercopithecus aethiops)	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

Transect Survey Results

Species documented during the transect surveys included the following: Grivet monkey (Cercopithecus aethiops), Lesser Spot-Nosed Monkey (Cercopithecus (C.) petaurista), Senegal Galago (Galago senegalensis), Brush-Tailed Porcupine (Atherurus africanus), Long-snouted Mongoose (Herpestes naso), Common Cusimanse (Crossarchus obscurus), Common Genet (Genetta genetta), Maxwell's Duiker (Sylvicapra grimmia), Campbell's Monkey (Cercopithecus campbelli), Black and White Colobus (Colobus spp.), and Bushbuck (Tragelaphus scriptus). Additionally, footprints, trails, or droppings of the following species were observed during the survey: Bushbuck,

Genet (Genetta spp.), Yellow-backed Duiker (Cephalophus silvicultor), and Black Duiker (Cephalophus niger).

6.6 Air Quality and Noise

6.6.1 Noise Quality

Baseline ambient noise monitoring was carried out in February 2025 at three representative locations across the proposed SAPZ project area in Kambia District i.e. Kobia, Kychum, and Robanna. These locations were selected to capture the typical acoustic environment of the project's operational footprint, including both direct project sites and their immediate buffer zones. Monitoring was conducted using a Casella CEL 633A Class 1 sound level meter, in accordance with British Standard EN 61672-1:2003 specifications. Instruments were calibrated prior to use and mounted 1.3 to 1.6 meters above ground in free-field conditions, more than 3 meters away from any reflective surfaces.

Measurements at each location were recorded as five-minute LAeq averages over one-hour durations, with duplicate sessions conducted to reflect variability over time. The results revealed a range of equivalent continuous sound levels (LAeq) between 45.3 dB(A) and 58.2 dB(A). The highest levels were observed at the Kychum site (Kam 02), where sustained elevated noise may be attributed to proximity to community activities and unpaved roads with intermittent motorcycle traffic.

A summary of the monitoring results is presented below:

Table 10: Summary of Average Daytime Noise Levels

Location ID	Site Name	Date	Monitoring Duration (hrs)	LAeq (dB(A))
Kam 01	Kobia Project Site	03/02/2025	1	53.5
		03/02/2025	1	45.3
Kam 02	Kychum Project Site	02/02/2025	1	58.2
		02/02/2025	1	58.1
Kam 03	Robanna Project Site	04/02/2025	1	47.3
		04/02/2025	1	56.0

Measured noise levels were generally moderate and consistent with rural development zones undergoing early construction and agricultural preparation. Most values fall within acceptable WHO and World Bank thresholds for daytime noise (55 dB for residential areas) with th exception of Kychum.

6.6.2 Air Quality

To establish baseline air quality conditions across the SAPZ Kambia project area, targeted air quality monitoring was conducted between in April 2025 at three locations: Kobia, Kychum, and Robanna. These sites were selected based on local topography, prevailing wind directions, site layout, and proximity to sensitive receptors. The monitoring campaign measured key pollutants including particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3),

sulphur dioxide (SO_2), and volatile organic compounds (VOCs), alongside concurrent meteorological parameters.

Portable Aeroqual Series 500 sensors were deployed, with sensors mounted 1.4 to 1.6 meters above ground to reflect human exposure levels. At each site, monitoring was performed over three consecutive days.

Table 11: Summary of Mean Pollutant Concentrations (3-Day Averages)

Parameter	Units	WHO Limit	Kobia (Kam 01)	Kychum (Kam 02)	Robanna (Kam 03)
$PM_{2.5}$	µg/m³	25	35.05	31.54	17.22
PM_{10}	µg/m³	50	62.95	72.32	45.61
NO_2	µg/m³	200	7.83	15.03	22.40
CO	µg/m³	3,000	64.66	30.63	0.00
O_3	µg/m³	100	27.14	21.25	22.13
SO_2	µg/m³	20	0.00	0.00	0.00
VOCs	mg/m³	NA	294	206	310
Temperature	°C	NA	31.4	29.0	25.8
Relative Humidity	%	NA	52.3	50.1	50.4

6.6.2.1 Results and Interpretation

Particulate matter concentrations were elevated at all three sites, with both $PM_{2.5}$ and PM_{10} exceeding WHO daily guideline limits in Kobia and Kychum. These levels are attributable to local sources such as burning of fossil fuels, generator emissions anddust from vehicle traffic on unpaved roads. Robanna, by contrast, exhibited PM levels within levels acceptable to th WHO standards.

All other pollutants including NO_2, CO, SO_2, and O_3, were within international guideline values. CO was undetectable at Robanna, and SO_2 was undetectable at all sites, reflecting the absence of large-scale industrial combustion or high-sulfur fuel use in the project zone.

Volatile Organic Compounds were present at moderate levels (206–310 mg/m³), likely originating from fuel combustion, evaporative vehicle emissions, and household product use. While no formal VOC limits exist, these findings underscore the importance of managing point sources such as generators and transport hubs.

Meteorological data recorded during the campaign indicate typical dry season conditions, with ambient temperatures ranging between 25.8°C and 34.3°C and relative humidity around 50 percent.

In summary, air quality in the Kambia SAPZ project area is generally good, with most pollutants within WHO limits with the exceptions of particulate matter. It should be noted that elevated levels of particulate matter are normal in the subregion during the dry season.

6.7 Environmental Sensitivities and Climate Risk

Kambia District exhibits a number of environmental sensitivities that must be considered in project planning and implementation. The presence of inland valley swamps (IVS), riparian corridors, and mangrove-lined estuaries along the Great and Little Scarcies Rivers highlights the ecological fragility of parts of the landscape. These areas provide critical ecosystem services, including flood attenuation, biodiversity support, and groundwater recharge, but are also vulnerable to degradation from land conversion, pollution, and unregulated resource use.

In addition, the district is exposed to a variety of climate risks, including:

- Seasonal flooding during the peak rainy months (July–September), which can disrupt agriculture, damage infrastructure, and increase erosion in low-lying areas;
- Prolonged dry spells and erratic rainfall, affecting crop productivity and water availability;
- Harmattan winds (December–February), which reduce air quality and contribute to respiratory health challenges;
- Saltwater intrusion in estuarine areas, particularly during periods of reduced freshwater flow, threatening the quality of water resources and agricultural soils.

The interplay between these sensitivities and the district's climate variability necessitates the integration of climate-resilient design, ecosystem protection, and adaptive land use planning in the proposed SAPZ interventions to safeguard environmental integrity and sustain livelihoods.

7 ANALYSIS OF ALTERNATIVES

The evaluation of project alternatives is a fundamental element of the Environmental and Social Impact Assessment (ESIA) process. It ensures that the project design and implementation are informed by a comparison of different development options based on their environmental, social, technical, economic, and climate-related implications. For the Sierra Leone Rice Special Agro-Industrial Processing Zone (SAPZ) Project in Kambia District, the following alternatives were assessed: (1) implementation in an alternative location, (2) a no-project scenario, and (3) the proposed project as designed.

7.1 ALTERNATIVE LOCATION: SITING THE AGRO-INDUSTRIAL HUB IN ANOTHER DISTRICT

One alternative considered was to site the Agro-Industrial Hub (AIH) in a different district such as Bombali, Tonkolili, or Bo. While these districts also have significant agricultural potential, they were not selected for several interrelated reasons:

Technical and Economic Considerations:

These locations lack the spatial proximity to the 136,000 hectares of arable rice land straddling Kambia and Port Loko Districts. Locating the AIH further from the production base would increase post-harvest losses, reduce operational efficiency, and raise transportation costs.

Social and Institutional Factors:

Kambia District presents a unique opportunity to stimulate inclusive rural development in historically underserved border communities. It has demonstrated strong institutional support from local authorities and community stakeholders for land identification, and access.

Environmental and Climate Dimensions:

Kambia's target areas include already disturbed or cultivated lands under extensive rice production, avoiding th need to clear new areas for rice production and therefore reducing the project's ecological footprint. Moreover, Kambia's relatively flat terrain and soil characteristics are favourable for low-emission mechanized agriculture and solar-powered infrastructure.

Climate Resilience:

Kambia lies in the ecologically strategic Lower Scarcies basin, which offers favourable water availability for climate-resilient rice production compared to more arid interior districts. This contributes to improved water-use efficiency and climate adaptation potential in the face of changing rainfall patterns.

Given these considerations, the selection of Kambia as the site for the AIH and related interventions remains the most appropriate and sustainable choice.

7.2 NO PROJECT SCENARIO

The "no project" scenario involves not implementing the SAPZ Project in Kambia District. In this scenario:

Social Implications:

Smallholder farmers would continue relying on traditional low-yield farming methods with limited access to technology, credit, and markets. Youth and women would remain excluded from value chain opportunities, reinforcing poverty and rural-urban migration.

Community health risks related to food insecurity and poor nutrition would persist, and limited investment in social services would further entrench inequality.

Environmental Implications:

Without structured land use planning and investment in sustainable practices, unsupervised expansion of agricultural activities could lead to encroachment on wetlands and sensitive ecosystems. Continued slash-and-burn practices may result in deforestation, soil erosion, and biodiversity degradation.

Climate Change Risks:

The absence of climate-smart technologies (e.g., improved seed varieties, mechanized land preparation, irrigation infrastructure) would increase the vulnerability of local farmers to erratic rainfall, flooding, and prolonged dry spells. Farmers would lack the capacity to adopt adaptive practices needed to buffer the district's agriculture from climate shocks.

Overall, the "no project" option would mean lost opportunities to reduce rural poverty, enhance food security, and introduce climate-resilient agricultural systems. It does not align with the national Feed Salone Strategy or international commitments to the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 13 (Climate Action).

7.3 PROPOSED PROJECT SCENARIO (PREFERRED OPTION)

The preferred scenario is the implementation of the SAPZ Project in Kambia District, encompassing:

- The development of an Agro-Industrial Hub in Mambolo Chiefdom;
- Establishment of an Agricultural Transformation Centre (ATC) and Aggregation Centre (AC) in Kychum;
- Provision of support for climate-smart rice production on approximately 20,000 hectares in Samu and Mambolo Chiefdoms.

Social Benefits:

- The project will generate employment opportunities across the value chain, particularly for youth and women, and promote inclusive land management practices.
- Social infrastructure improvements (e.g., farm track rehabilitation, storage, training) will enhance local livelihoods and promote community cohesion.

Environmental Considerations:

- The Environmental and Social Management Plan (ESMP) will guide the protection of natural habitats, enforce agrochemical use standards, and implement conservation agriculture techniques to minimize environmental harm.
- Site selection avoids ecologically sensitive zones and emphasizes use of already degraded or underutilized land parcels.

Climate Change Alignment:

- The project supports climate-smart agriculture, including resilient rice varieties, conservation tillage, and efficient irrigation systems.
- Renewable energy components (e.g., solar-powered infrastructure) will reduce GHG emissions associated with processing and storage.
- Through agroforestry and restoration efforts in buffer zones, the project may contribute to carbon sequestration and watershed protection.

In conclusion, the proposed scenario presents the best balance of economic opportunity, social inclusion, environmental protection, and climate resilience. It is consistent with the Government of Sierra Leone's Feed Salone Strategy and the African Development Bank's Feed Africa framework. It also responds directly to the vulnerabilities of Kambia's farming communities in the context of climate change and environmental degradation.

8 PREDICTION, EVALUATION, AND MITIGATION OF IMPACTS

This section presents the prediction, evaluation, and mitigation of potential environmental and social impacts associated with the SAPZ Project, covering the Preliminary, Construction, Operation and Maintenance, and Decommissioning phases. Impacts are assessed using established criteria i.e. magnitude, spatial distribution, duration, reversibility, and probability; and 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.

Methodology

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

The implementation of the SAPZ Project in Kambia District is expected to generate a variety of environmental and social impacts, both positive and negative, across its lifecycle. These impacts will vary by project phase: Preconstruction, Construction, Operation and Maintenance, and Decommissioning, and will affect environmental resources, social structures, and the broader development trajectory of host communities. The analysis below outlines the potential effects at each stage, along with associated mitigation strategies designed to enhance positive outcomes and reduce or eliminate adverse impacts.

8.1.1 Preconstruction Phase

During the Preconstruction Phase, the primary project activities will include the identification and mapping of suitable farms for project supported rice production across 20,000 hectares in Samu and Mambolo Chiefdoms, as well as designing the Agricultural Transformation and Aggregation Centre in Kychum and the Agro-Industrial Hub (AIH) in Robanna Village. Critical stakeholder engagement processes, land registration, and participatory planning are also anticipated at this stage.

The environmental and social risks and impacts in this phase are predominantly social in nature. One key area of concern is the potential for land-related grievances. If participatory engagement processes are not inclusive and transparent, there is a heightened risk that vulnerable groups, including youth, women, and ethnic minorities, may be excluded from the project's benefits.

Further, without careful environmental screening, the selection of project sites could inadvertently lead to the siting of infrastructure or farming activities in ecologically sensitive zones such as, seasonally inundated wetlands, flood-prone lowlands, or areas with high biodiversity value,resulting in long-term environmental degradation or increased vulnerability to climate risks such as flooding.

However, if conducted effectively, this phase also presents critical opportunities. Early and inclusive consultations can lay the groundwork for long-term community ownership and acceptance of the project. Moreover, using environmental and social screening tools to inform site selection can significantly reduce the risk of negative environmental and social impacts later in the project lifecycle.

8.1.2 Construction Phase

The Construction Phase is likely to produce the most visible and immediate environmental and social impacts. This phase will involve the development and preparation of farmland, clearing of vegetation, rehabilitation of farm tracks, and the construction of the ATC/AC in Kychum and the AIH in Mambolo. It also includes the construction and rehabilitation of small riverine wharfs to support the waterborne transport of rice paddy from low-lying production zones in Kambia District. These activities will result in significant alterations to the landscape and introduce new sources of environmental stress.

Vegetation clearance, particularly in areas where forest patches or wetland vegetation persist, could result in habitat loss and biodiversity reduction. In addition, the sandy and often loosely compacted soils in parts of Kambia pose a high risk for erosion and sedimentation of nearby streams and drainage channels, especially if construction proceeds without effective soil stabilization measures. Machinery and equipment use will increase levels of dust and noise, potentially affecting both construction workers and nearby households or schools. Alteration of local hydrological patterns—such as blocking or redirecting natural drainage paths could exacerbate flood risks, especially in already climate-sensitive zones. The farm track rehabilitations may cause minor habitat fragmentation and 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.

The construction phase also has the potential to impact local avifauna and terrestrial fauna. Bird species that nest or forage in swamp vegetation, riverine thickets, or open forest edges may be displaced by noise, tree felling, and general construction activity. Nocturnal and diurnal mammals, amphibians, and reptiles, especially those in or near seasonal streams may be killed or forced to relocate during land clearing and equipment movement. These disruptions could lead to localised biodiversity loss and behavioral changes in fauna due to habitat fragmentation and increased human disturbance.

The construction or rehabilitation of small riverine wharfs presents additional environmental considerations. It should be noted that most riverine communitis in the project area already have concrete reinforced wharfs and the project is expected to focus on the rehabilitation of existing wharfs. These wharfs, which are intended to facilitate rice paddy transport by boat, may disturb aquatic and riparian habitats. Construction activities such as piling, dredging, or bank reinforcement could increase turbidity, affect water quality, and damage breeding grounds for fish and amphibians. There is also a risk of fuel or lubricant spills near watercourses during wharf construction. Bank vegetation which is often critical for slope stability and wildlife habitat may be removed, further increasing erosion risk. These impacts underscore the need to primarily focus on rehabilitation of

existing wharfs and in the event that construction is required careful siting, containment of runoff, and adoption of sediment control measures during construction.

On the social front, the influx of construction workers from outside the community may introduce risks related to gender-based violence (GBV), exploitation of community resources (e.g., shared water and sanitation facilities), the use of drugs including 'kush[4]', cannabis, etc., increase theft within the community and the project area and spread communicable diseases including sexually transmitted infections. The project may also inadvertently attract children to the site, increasing the risk of child labour or injury, particularly in the absence of strict access controls. Furthermore, construction activities may disrupt local transportation and cause short-term inconvenience to farmers moving produce or inputs.

Despite these risks, this phase also offers valuable socioeconomic opportunities. If managed responsibly, construction activities can create short-term employment for community members and contribute to skills development. Local procurement of materials and services can boost local economies. To fully realize these benefits and safeguard vulnerable groups, contractors must enforce clear codes of conduct, adhere to national labour standards (including minimum age requirements), and provide induction training on occupational health and safety, sexual harassment, and community relations.

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 represents the core functionality of the SAPZ Project and will include rice cultivation, irrigation, agro-processing at the ATC and AIH, and transportation of produce to markets. In addition to road-based haulage, this phase will also involve the routine use of riverine transport systems via small community wharfs for the movement of harvested paddy from lowland fields to the processing facilities. Most of the riverine communities in the project area already have concrete-reinforced wharfs, and the project will primarily focus on the rehabilitation and functional upgrading of these existing facilities rather than the construction of entirely new ones.These activities will have both direct and indirect environmental and social consequences.

From an environmental standpoint, the most significant risks arise from the use of agrochemicals such as fertilizers, herbicides, and pesticides. Without proper guidance and oversight, chemical misuse could lead to contamination of surface water bodies and groundwater, particularly in areas with shallow water tables or near seasonal streams. Additionally, long-term monoculture practices may contribute to soil nutrient depletion and decline in soil structure, undermining the sustainability of the production system. Poor irrigation management may also result in waterlogging, salinization, or depletion of aquifers.

Agro-processing facilities, will generate solid and liquid waste, such as rice husks, wastewater, and packaging waste which could attract pests, degrade local air and water quality, and pose health risks

[4] 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.

to workers and communities. Energy use in these facilities may also contribute to localized emissions unless energy-efficient systems are used.

On the social side, this phase will unlock substantial benefits for the district. Increased agricultural productivity, higher farmer incomes, and job creation across the value chain are anticipated. The development of cooperatives and producer organizations will strengthen rural institutions and improve bargaining power for smallholders. However, the expansion of vehicle movement,especially trucks carrying inputs and harvested produce may elevate the risk of road accidents. Youth on motorbikes and school-going children are particularly at risk in areas where roads are narrow or poorly maintained.

To mitigate these impacts, the project must implement a robust environmental management system that includes agrochemical training, periodic water and soil quality testing, and solid waste management procedures. Socially, transport safety campaigns, cooperative strengthening, and continuous community engagement will be crucial to maximizing the benefits while minimizing risks.

8.1.4 Decommissioning and Restoration Phase

Though further in the future, the Decommissioning Phase will be necessary either at the end of the project lifecycle or due to shifts in infrastructure needs. This phase will involve dismantling physical structures (e.g., ATC &AC, AIH) and rehabilitating the project site.

The dismantling process may produce environmental risks such as dust, noise, and the improper disposal of demolition debris, which can contaminate nearby land and water resources. Uncontrolled stockpiles of waste can also attract vermin or create breeding grounds for disease vectors such as mosquitoes and rodents. If surrounding communities are not adequately informed or involved, the process may also cause social disruption.

However, the decommissioning phase also offers the opportunity to restore ecological function and enhance climate resilience. For example, sites can be re-vegetated using native tree or grass species to prevent erosion and promote biodiversity. Soils can be rehabilitated to enable future agricultural use or natural regeneration. The involvement of local communities in site rehabilitation can help ensure long-term stewardship of restored areas.

8.1.5 Cumulative and Indirect Impacts

In addition to the direct, phase-specific impacts described above, the SAPZ Project in Kambia District may generate broader cumulative and indirect effects over time, particularly as it interacts with other ongoing agricultural and infrastructure developments in the region.

8.1.5.1 Cumulative Impacts

Cumulative impacts refer to the combined effect of SAPZ activities when viewed alongside other regional projects, demographic trends, or environmental stressors. As agricultural intensification progresses across the district, there is a risk of widespread soil fertility decline if sustainable practices (e.g., crop rotation, cover cropping) are not adopted. Fertile lowlands may become less productive, undermining long-term food security and farm incomes.

Similarly, the increased use of groundwater and surface water for irrigation, especially during the dry season, could place excessive pressure on local aquifers and rivers many of which are already

vulnerable due to seasonal variability and the impacts of climate change. Over time, this could reduce the availability of water for other agricultural or domestic users.

Transport activities associated with SAPZ, particularly during harvest periods, will significantly increase traffic on key rural roads. This, in combination with other traffic from trade, mining, and logging operations, could contribute to cumulative declines in air quality and road safety, especially in communities with limited enforcement capacity or traffic control infrastructure. The increases in river transport during operations especially at the peak of harvest time may add further traffic to key water routes. If not well coordinated this could strain wharf landings also used for the transportation of people, fishing and may result in long term degradation of riparian zones in the vicinity of community wharfs.

The progressive transformation of land for farming and agro-industrial purposes may also lead to the incremental loss of natural habitats, including wetlands and secondary forests. This could result in a reduction in biodiversity, diminished carbon storage capacity, and impaired flood regulation all of which are critical in a district increasingly affected by climate variability. Species that depend on riparian vegetation such as waterbirds, amphibians, and small terrestrial mammals may experience long-term population declines if multiple agricultural and infrastructure projects in the region result in sustained disturbance or habitat fragmentation.

8.1.5.2 Indirect Impacts

Indirect impacts are those applicable by the project but occurring at a different time or location. One likely outcome is increased migration into project areas, particularly around the AIH in Mambolo and the ATC in Kychum, driven by the availability of jobs and commercial opportunities. This could strain existing public services such as health clinics, schools, and sanitation facilities, particularly in areas that were previously rural and sparsely populated.

Another indirect impact may be the escalation of land prices and speculation around infrastructure hubs. This can be a double-edged sword: while it may increase wealth for some landowners, it can also marginalize smallholders and vulnerable groups, especially in the absence of formal land registration or equitable land governance mechanisms. Without proactive management, rising land values could fuel conflicts and deepen social inequalities.

As the project improves river transport systems and revives wharf-based logistics, there is also potential for new economic activities to emerge along riverbanks and waterways. While this may stimulate commerce and riverine trade, it could also lead to unplanned settlement growth around rehabilitated wharfs, pressure on aquatic resources, and informal exploitation of shoreline areas. If not accompanied by land-use zoning and navigation regulations, such developments may result in overcrowding, unregulated competition for wharf access, and localized conflict.

To address these challenges, the project must work collaboratively with the Kambia District Council, the Ministry of Lands, and other partners to promote integrated land use planning, develop affordable housing strategies where needed, and strengthen local governance institutions that can manage land disputes and urban growth.

8.2 IMPACT ASSESSMENT METHODOLOGY

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

Table 12: 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 4,000 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 4,000 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
ATC & AIH Identification	Loss of 20 hectares of land for construction of ATC & AIH	ATC / AIH Land Owners	10 Major	1 Site	4 Long Term	5 Definitiely	45 Moderate Negative
	Economic displacement due to removal of 500 oil palm, 600 mangos and 50 Yamane trees on the lands to be donated for the construction of the ATC & AIH.		10 Major	1 Site	4 Long Term	5 Definitely	45 Moderate Negative

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
Construction Phase							
Land development and preparation; Construction of AIH & ATC/AC; Farm track spot improvement; Wharf construction and rehabilitation	Increased community exposure to physical hazards associated with project site activities such as land preparation, construction of AIH & ATC and farm track spot improvements	Community members, road users	6 Moderate	2 Local	2 Short term	4 High	40 Moderate
	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
	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
	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)	Construction worker and project communities	10 Major	2 Local	4 Long Term	3 Medium	48 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

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
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
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	2 Low	34 Moderate

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
					Long term		
AIH, ATC and AC operations	Environmental degradation resulting from improper disposal of rice husk and other waste products generated during rice production	Vicinity of AIH, ATC/AC, communities	6 Moderate	2 Local	4 Long term	3 Medium	36 Moderate
Transportation of produce from Farm to ATC / ATC and 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 phase	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, land owners, farmer	3 Positive	3 Regional	4 Long Term	4 High	40 Positive
AIH, 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

Activity	Impacts	Potential Receptors	Magnitude	Spatial Distribution	Duration	Probability	Overall Significance
	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

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,encompassing 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 Kambia District, including:

- Production Support Zones (e.g. irrigated and rainfed rice cultivation areas)
- Agricultural Transformation Centres and/or Aggregation Centres (ATC/AC)
- Agro Industrial Hubs (AIH)
- Farm tracks 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 MATRIX

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Preconstruction Phase							
ATC & AIH Identification	Loss of 20 hectares of land for construction of ATC & AIH	• Conduct transparent stakeholder consultations • Complete VLD process (see Annex 6: Signed Volontary Land Forms) • Apply grievance redress mechanisms	• Signed VLD forms	Signed VLD included as part of ESIA	During project preparation	Ministry of Agriculture	N/A
	Economic displacement due to removal of 500 oil palm, 600 mangos and 50 Yamane trees on the lands to be donated for the construction of the ATC & AIH.	• Development and implementation of RAP / LRP (see • Annex 7:) for signed crop compensation consent forms	• Signed RAP consent forms • Crop compensation payment records	RAP Completion Audit	Implementation completed prior to any construction activties	PIU, Ministry of Agriculture	$10,849 NLe249,527
Farm identification and stakeholder engagement	Disputes / grievances arising from inadequate stakeholder engagement to secure the buy-in of approximately 4,000 farmers the project intends to support Disputes related to the selection process of approximately 4,000 targeted farmers	• 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	Monthly E&S reports submitted to AfDB Environmental and Social Performance Audits	Implementation completed prior to any construction and land preparation activities	PIU, Ministry of Agriculture, Ministry of Lands, Housing and Country Planning	$40,000 NLe460,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
	Exclusion of vulnerable groups from project benefits and decision-making processes		• Grievance logs: number of grievances received vs resolved	AfDB Implementation Support Missions			
	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 components to enhance ecological resilience. • Promote community-led forest management, particularly in areas of secondary regrowth. • Establish nursery programs for replanting vulnerable	• 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
		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 AIH &	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	• 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 • Noise Levels: dB	Air quality and noise level reports incorporated into monthly	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
ATC/AC; Farm track spot improvement; Wharf construction and rehabilitation	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,	• PPE Checklist • Daily toolbox talk • Inpection reports for equipment and machinery maintenance	reporting to AfDB	farm track rehabilitation		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 Replanting efforts if any to be done within 6 months of economic tree removal	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	• Occupational Safety, Health and Environment E&S Officer employed by the contractor	Contractor reports to the PIU Monthly PIU reporting to AfDB	CESMP drafted and approved prior to start of construction activities	Contractor Throughout all construction work	$15,000 NLe 345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		(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 the assignment and sensitize workers on the spread of infectious diseases. • Prepare and install warning and safety signs in work zones.	• Approved CESMP • Incident and accident statistics • HSE Training records (inductions, tool box talks) • Gender segregated toilet facilities provided for staff	AfDB supervision meetings 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 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					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 inform nearby community members. • Provide clear communication to the nearby communities about construction activities,	• 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	$7,500 NLe172,500

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 **Error! Reference source not found.**) 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	• 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
		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 • The Contractor will conduct regular training sessions on diversity, inclusion, and preventing discrimination for all employees, supervisors, and managers.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 farm tracks	• 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	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 farm track rehabilitation Mitigation methods to be implemented throughout farm track rehabilitation		

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 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,	• 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

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		available support services, and reporting mechanisms.					
	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^-) Nitrite (NO_2^-)	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
		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.	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				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 stay within the established baseline where appropriate. • Make temporary drains as necessary to avoid waterlogging or erosion. These must be adequate	in the grievance register				

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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 NIe115,000
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 nutrient uptake and minimizing excess accumulation	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	$25,000 NLe 575,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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	$10,000 Nle230,000
AIH, 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	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& AIH Management, Ministry of Agriculture	$15,000 Nle345,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
Operations and Maintenance	Occupational health and safety impacts arising from the use of heavy equipment during planting, harvesting, and primary processing activities at Agro-Industrial Hub & Aggregation and Transformation Centres (ATCs)	• 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 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.	Incident / accident statistics / reports 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 reporting to PIU by private sector Monthly reports to AfDB AfDB Supervision Missions	Implementation to start with commencement of farm and rice processing operations	PIU, Tractor owners and operators, AIH & ATC operators	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 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.					

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		• 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 rice yields in participating communities	• Employment on farms to prioritise locals • Training to be provided to community member to 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	Increased household incomes	Community interviews and economic surveys	Sample size of participating households costs for recurring economic surveys. First survey conducted prior to the first harvest and continued	PIU, Ministry of Agriculture	$10,000 NLe230,000

Activity	Potential Impacts	Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		usage, seed varieties, weather and planting times.			annually throughout project.		
ATC, AIH 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 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 ATC, AIH 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
		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 and AIH	ATC & AIH 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	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
			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 taking into consideration identified hazards					

Activity	Potential Impacts		Mitigation / Enhancement Measures	Verifiable monitoring indicator	Means of verification	Timetable for implementation	Responsible Entity	Estimated Implementation cost
		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	**$328,379 NLe 7,552,717**

9.4 BUDGET SUMMARY

Project Stage	Estimated ESMP Cost (USD)	Estimated Cost (NLe)
Preconstruction Phase	**70,849**	**1,610,000**
Stakeholder Consultations and farmer Identification	40,000	920,000
Screening of sites for Environmental Risks	15,000	345,000
Stakeholder consultations prioritizing vulnerable groups	5,000	115,000
RAP/LRP Implementation	10,849	249,527
Construction Phase	**73,500**	**1,403,000**
Air and Noise Monitoring during land development and ATC construction	10,000	230,000
Monitoring of land clearance and tree planting	13,000 (8,000)	299,000
OHS Measures: PPE, Signage, safety training, fire extinguishers, gender segregated toilets (with water and soap)	15,000	345,000
Community Safeguards: signage, flag men, community awareness, site demarcation, coordination with government bodies such as Sierra Leone Police and Sierra Leone Road Safety Authority	7,500	172,500
Traffic Management	10,000	230,000
GBV awareness training to workers and the community	5,000	115,000
Communicable diseases awareness	2000	46,000
Water Quality Tests	5,000	115,000
Waste Management	6,000	138,000
Wharf rehabilitation / construction measure	5000	115,000
Operations and Maintenance Phase	**150,000**	**3,450,000**
Soil Quality Testing	25,000	460,000
Water Quality Testing	50,000	1,115,000
Small Scale Irrigation: Set up and operationalization of Water Management Committees , rainwater harvesting	10,000	230,000
Waste Management: Alternative uses of for organic waste i.e. composting, animal feed; Waste management including contaminated waste	20,000	460,000
Traffic Management	5,000	115,000
River Transport Management (training of boat operators, life jackets, etc)	10,000	230,000
OHS Measures: Mechanised farming and ATC operations	10,000	230,000
Annual household economic surveys	10,000	230,000
Decommissioning Phase	**34,000**	**782,000**
OHS: Demolition of AIH & 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	**87,250**	**2,006,750**
RAP Completion Audit	**5,000**	**115,000**
Total Estimated Cost	**460,629**	**10,594,467**

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 RAP/LRP Implementation	Monthly	All phases	PIU / Community Liaison	Ministry of Lands / EPA / AfDB
Grievance	GRM entries and resolution	Monthly	All phases	PIU / GRM	AfDB / EPA

9.5.1 Reporting and Review

- 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.

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

10 Roles and Responsibilities

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 Kambia 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.

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 Kambia 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 deliver 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 Sierra Leone Maritim Administration

Role: National regulatory authority for maritime and inland waterway transport safety, security, and environmental compliance. SLMA oversees vessel registration, enforcement of river navigation standards, and safety monitoring for inland ports and wharfs.

Capacity Assessment: The SLMA has established authority under the Sierra Leone Maritime Administration Act, 2000 (as amended), with a mandate that includes oversight of riverine and coastal transport. The agency maintains technical expertise in vessel certification and safety inspections, and it has some experience collaborating with other ministries on port infrastructure development.

institutional capacity for regulating small-scale, inland water transport, particularly in remote rural districts such as Kambia is limited. Field presence along the Scarcies River and its tributaries is minimal, and resources for regular inspection of river transport operations (e.g., small boats, cargo canoes) are constrained.

Recommendations:

- Strengthen SLMA's local presence and operational support in the Kambia District river transport corridor, including logistical support and inter-agency coordination.
- Include SLMA officers in project training on ESMP implementation and occupational health and safety (OHS) standards relevant to wharf operation and river logistics.

10.7 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 Kambia 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 national E&S frameworks.
- Ensure consistent and effective ESMP implementation and monitoring.
- Promote institutional sustainability of safeguard systems at national, district, and community levels.

Target Institutions and Responsibilities

Table 13: 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, supervise AIH 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.

Institution	Capacity Needs	Proposed Activities	Estimated Cost (USD)
SAPZ PIU – Safeguards Team	ISS 2023 compliance, reporting, adaptive ESMP implementation	- 3-day intensive training on AfDB ISS, ESMP supervision, Gender, GRM, and reporting	$8,000
MAFS (Central & District)	Integration of ESMP into planning and oversight functions	- 2-day training on E&S safeguards, environmental permitting, climate adaptation	$5,000
		- Quarterly technical backstopping missions (4/year)	$5,000
EPA Regional Office (Makeni)	Enhanced site inspection techniques, agrochemical monitoring	- Training on agrochemical risk assessment	$2,000
District Council	Oversight of social impacts, local stakeholder engagement	- Orientation on social safeguards, voluntary land acquisition principles, and GBV prevention	$3,000
		- Support for community outreach sessions	$3,000
Contractors & Subcontractors	Site-level ESMP implementation, OHS compliance, labour law awareness	- Biannual training on OHS, GBV/SEA, grievance redress, waste management, and emergency response	$10,000
Community Grievance Committees	Grievances management and ensuring inclusion	- Training on community monitoring tools, feedback channels, and environmental awareness (4 sessions)	$8,000

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**

10.8 Monitoring and Evaluation

- 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)**. (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.*
- **National Environmental Policy (2014)** *Ministry of the Environment / Environment Protection Agency Sierra Leone (EPA-SL).*
- **Medium-Term National Development Plan 2019–2023**

Sierra Leone. New York: UNDP.

- **World Bank Group. (2017).** *Environmental and Social Framework (ESF)*. Washington, DC: World Bank.
- **World Bank Group. (2023).** *Climate Risk Screening Tool for Agriculture Projects in Sub-Saharan Africa*. Washington, DC: World Bank.
- **World Health Organization (2023).** *Global Air Quality Database 2023.* Retrieved from https://www.who.int/data/gho/data/themes/air-pollution
- **NASA (2023).** *Earth Observing System Data and Information System (EOSDIS).* National Aeronautics and Space Administration. Retrieved from https://earthdata.nasa.gov/
- **Copernicus Atmosphere Monitoring Service (CAMS) (2023).** *Air Quality Monitoring Reports.* European Centre for Medium-Range Weather Forecasts (ECMWF). Retrieved from https://atmosphere.copernicus.eu/

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[5] 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;

<u>Regarding children under the age of 18:</u>

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.

[5] **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.

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.
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 - Triggering 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

E&S resources allocated to the concerned worksites	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	(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	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

with site surrounding communities	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 - Triggering 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 Kambia 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	Field pesticide/fertilizer application	Triple rinse, puncture, and store in secure, labelled containers. Arrange for collection by licensed hazardous waste handlers.
Agricultural waste	Crop residues, spoiled grain, husks, bran	Compost or use for livestock feed where appropriate. Avoid open burning. Dispose of excess biomass through designated organic waste channels.
Sanitary and domestic waste	Toilets, cafeterias, rest areas, staff quarters	Install septic systems or connect to sewerage. Ensure regular emptying and safe disposal. Segregate recyclable and organic fractions.
Office waste	AIH and ATC/AC administrative operations	Implement paper and plastic segregation; use approved service providers for periodic collection. Encourage digital record-keeping to reduce paper use.

Processing waste (organic solids)	Rice husks, bran, parboiled residues, broken rice	Explore reuse as biofuel, animal feed, or compost. Store in dry, ventilated areas prior to reuse or disposal.
Processing wastewater	Parboiling and rice washing processes	Direct to sedimentation tanks and/or treatment units. Reuse where possible (e.g., for irrigation) or dispose according to effluent standards.
Equipment maintenance waste	Used oils, filters, lubricants, cleaning agents	Collect in bunded areas; store in labeled containers. Engage certified recyclers or hazardous waste companies for off-site treatment.
E-waste	Obsolete IT equipment, control systems, sensors	Maintain inventory; store securely. Dispose of through certified e-waste recycling providers in compliance with national standards.
Packaging waste	Sacks, plastics, containers from rice packaging	Encourage reusable/recyclable packaging. Collect and return where systems exist; dispose of non-recyclables through certified municipal providers.
Air emissions (particulate)	Boilers, driers, parboiling units	Install filters or scrubbers where applicable. Monitor emissions periodically to comply with national air quality standards.
Noise and odor	Processing machinery, parboiling, generator sets	Implement routine maintenance. Install noise barriers and maintain separation from sensitive receptors. Odor control through good housekeeping and timely waste removal.

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 Recommendations:

1. **Documentation**: Maintain records of all waste disposal activities, especially for hazardous waste (e.g., agrochemical containers, used oil).
2. **Training**: Regularly train staff on waste segregation, spill response, and safe handling procedures.
3. **Signage**: Use clear labelling and signage at waste storage areas to reduce handling errors.

4. **Contingency Planning**: Include emergency spill kits and procedures at ATC/AC sites and around hazardous waste storage areas.

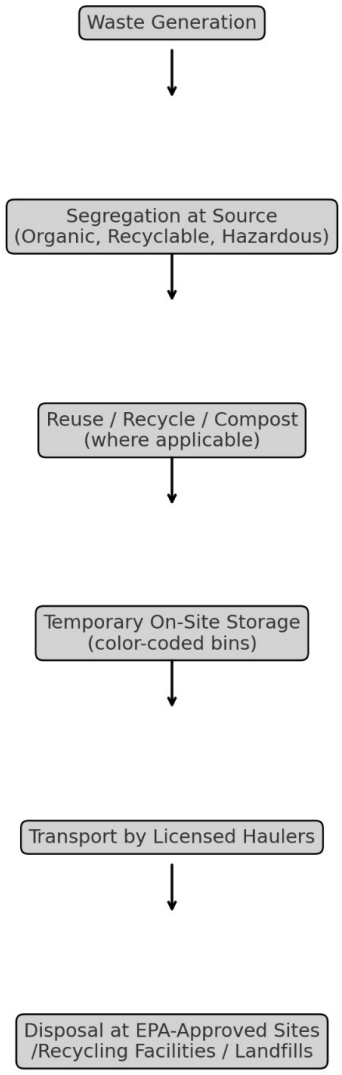


Figure 11: Waste Flow Diagram

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 Kambia 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 – KAMBIA DISTRICT

Introduction

This Emergency Response Plan (ERP) outlines preparedness, response, and recovery procedures for potential emergencies that may arise during the implementation of the SAPZ Project in Kambia District. Key project components include the Agro-Industrial Hub (AIH) in Mambolo, the Agricultural Transformation and Aggregation Centres (ATC/AC) in Kychum, and extensive rice cultivation in Samu and Mambolo Chiefdoms. The plan considers risks associated with agro-processing, transport, storage of agrochemicals, and engagement with local communities.

Objectives

- To protect workers, communities, the environment, and project assets.
- To define emergency procedures for all project phases.
- To ensure coordinated responses among contractors, project personnel, local authorities, and emergency services.

Scope

This ERP applies to emergencies that may occur during pre-construction, construction, and operation of the Kambia SAPZ Project, including:

- Transport of agro-inputs, processed and unprocessed rice
- Agrochemical storage and application at farm and AIH levels
- Risks of fire in processing facilities and storage warehouses
- Flooding and water-related hazards in low-lying agricultural zones
- Occupational injuries in field and industrial settings
- Community unrest and disputes over land or employment

Emergency Scenarios and Response Measures

Transport Accidents

Risks: Collisions involving trucks transporting paddy rice, agrochemicals, or machinery; accidents during delivery to/from AIH and ATC.

Prevention

- Train drivers in defensive driving and handling of hazardous materials.
- Maintain vehicles and enforce transport schedules during daylight hours.

- Use GPS tracking and designated safe routes.

Response

- Secure the scene and prevent further accidents.
- Provide immediate first aid and contact emergency services.
- Notify the PIU and document the incident for investigation.

Agrochemical Spills

Risks: Spills during loading/unloading at AIH, improper handling on farms, or leaks from storage tanks.
Prevention

- Store chemicals in ventilated, bunded facilities at the AIH and ATC.
- Maintain MSDS for all substances and provide PPE to handlers.
- Train workers on handling, emergency spill control, and waste management.

Response

- Evacuate area and deploy spill containment measures.
- Isolate contaminated materials for disposal by licensed entities.
- Report incident to the PIU and EPA-SL for regulatory follow-up.

Fire Outbreaks

Risks: Fire in processing machinery, biomass drying facilities, or storage silos containing paddy and processed rice.
Prevention

- Equip AIH and ATC with fire extinguishers, smoke detectors, and sprinkler systems.
- Conduct regular fire drills and designate trained fire marshals.
- Prohibit smoking and open flames near flammable materials.

Response

- Activate fire alarm, evacuate area, and suppress fire using extinguishers.
- Call fire services and ensure safe access routes are clear.
- Conduct a post-incident assessment and update fire protocols.

Flooding and Water Inundation

Risks: Inundation of rice fields, damage to ATC and AIH equipment, disruption of access roads.
Prevention

- Design drainage infrastructure at AIH and ATC to manage stormwater.
- Avoid siting critical infrastructure in flood-prone areas.
- Schedule major logistics during dry seasons.

Response

- Relocate vulnerable equipment and materials.
- Suspend field activities where risks are high.
- Engage local authorities for evacuation and post-flood assessment.

Occupational Accidents

Risks: Injuries from processing machinery, manual handling, and fieldwork.
Prevention

- Provide induction safety training and use of PPE.
- Post safety signage in all high-risk areas.
- Maintain safety protocols for all equipment.

Response

- Administer first aid and refer to nearest medical facility.
- Notify the PIU and document the incident.
- Conduct safety audits and reinforce training.

Rioting and Civil Unrest

Risks: Blockage of roads to AIH or farms, attacks on property, threats to workers.
Prevention

- Maintain open dialogue with communities through the GRM and stakeholder engagement platforms.
- Monitor early warning signs via community liaison officers.
- Collaborate with District Security Committee (DISEC).

Response

- Immediately suspend non-essential operations.
- Protect lives—secure accommodation and evacuate if needed.
- Notify authorities and activate internal communication protocols.

Emergency Contacts

Service	Contact
Police	112
Fire Brigade	999
Health Emergency	117
EPA Northern Regional Office	1999
SAPZ PIU Emergency Focal Point	TBC
Paramount Chief (Samu or Mambolo)	TBC

Training and Drills

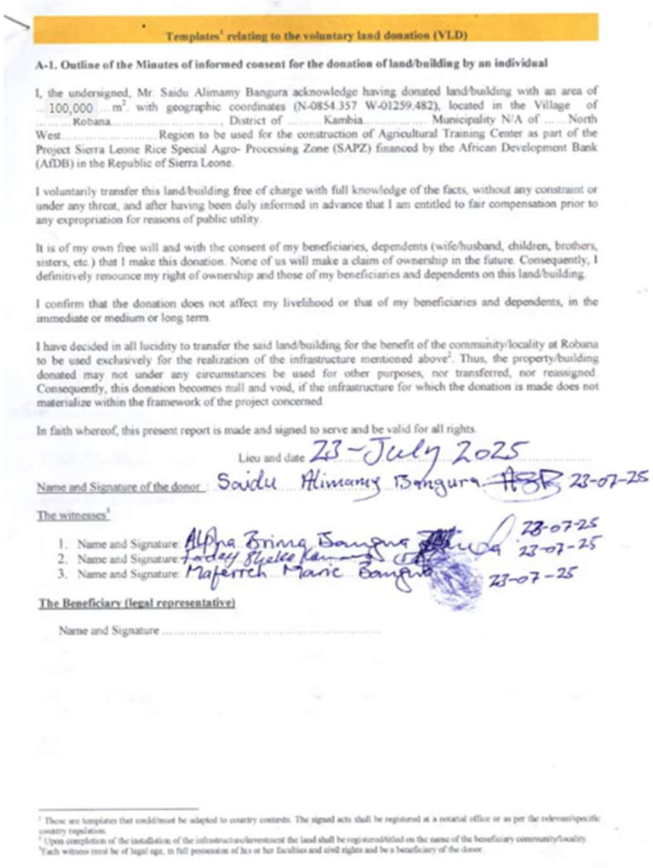
- Conduct quarterly emergency drills for site workers and contractors.
- Provide annual refresher training on ERP protocols and first aid.
- Include emergency briefings in all induction programs for staff and visitors.
- Simulate agrochemical spill and fire response at AIH at least once a year.

Reporting and Review

- All incidents must be reported within 24 hours to the PIU Safeguards Officer.
- Detailed incident reports, including root cause analysis, must be submitted within 72 hours.
- ERP will be reviewed annually and after any major incident, with updates approved by the PIU and shared with the EPA.

ANNEX 6: SIGNED VOLONTARY LAND FORMS

ROBANNA VLD



Templates[1] relating to the voluntary land donation (VLD)

A-1. Outline of the Minutes of informed consent for the donation of land/building by an individual

I, the undersigned, Mr. Saidu Alimamy Bangura acknowledge having donated land/building with an area of ...100,000... m², with geographic coordinates (N-0854.357 W-01259.482), located in the Village of .....Robana....., District of .....Kambia..... Municipality N/A of .....North West..... Region to be used for the construction of Agricultural Training Center as part of the Project Sierra Leone Rice Special Agro- Processing Zone (SAPZ) financed by the African Development Bank (AfDB) in the Republic of Sierra Leone.

I voluntarily transfer this land/building free of charge with full knowledge of the facts, without any constraint or under any threat, and after having been duly informed in advance that I am entitled to fair compensation prior to any expropriation for reasons of public utility.

It is of my own free will and with the consent of my beneficiaries, dependents (wife/husband, children, brothers, sisters, etc.) that I make this donation. None of us will make a claim of ownership in the future. Consequently, I definitively renounce my right of ownership and those of my beneficiaries and dependents on this land/building.

I confirm that the donation does not affect my livelihood or that of my beneficiaries and dependents, in the immediate or medium or long term.

I have decided in all lucidity to transfer the said land/building for the benefit of the community/locality at Robana to be used exclusively for the realization of the infrastructure mentioned above[2]. Thus, the property/building donated may not under any circumstances be used for other purposes, nor transferred, nor reassigned. Consequently, this donation becomes null and void, if the infrastructure for which the donation is made does not materialize within the framework of the project concerned.

In faith whereof, this present report is made and signed to serve and be valid for all rights.

Lieu and date 23-July 2025

Name and Signature of the donor: Saidu Alimamy Bangura 23-07-25

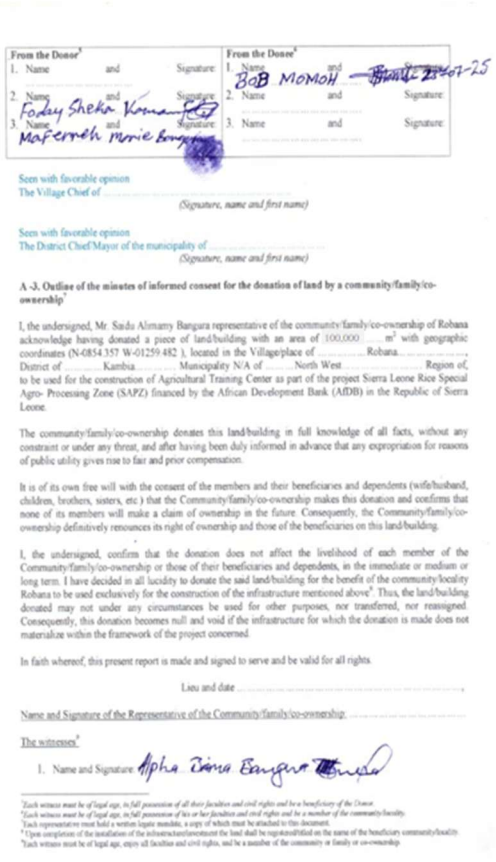
The witnesses[3]

1. Name and Signature: Alpha Brima Bangura 23-07-25
2. Name and Signature: Fodey Sheka Kamara 23-07-25
3. Name and Signature: Maferreh Marie Bangura 23-07-25

The Beneficiary (legal representative)

Name and Signature .....

[1] These are templates that could/must be adapted to country contexts. The signed acts shall be registered at a notarial office or as per the relevant/specific country regulation.
[2] Upon completion of the installation of the infrastructure/investment the land shall be registered/titled on the name of the beneficiary community/locality.
[3] Each witness must be of legal age, in full possession of his or her faculties and civil rights and be a beneficiary of the donor.



From the Donor[3]

1. Name and Signature
2. Name and Signature
3. Name and Signature: Maferreh Marie Bangura

From the Donee[4]

1. Name and Signature: BOB MOMOH 23-07-25
2. Name and Signature
3. Name and Signature

Seen with favorable opinion
The Village Chief of .....
(Signature, name and first name)

Seen with favorable opinion
The District Chief/Mayor of the municipality of .....
(Signature, name and first name)

A -3. Outline of the minutes of informed consent for the donation of land by a community/family/co-ownership[1]

I, the undersigned, Mr. Saidu Alimamy Bangura representative of the community/family/co-ownership of Robana acknowledge having donated a piece of land/building with an area of 100,000 m² with geographic coordinates (N-0854.357 W-01259.482), located in the Village/place of .....Robana....., District of .....Kambia..... Municipality N/A of .....North West..... Region of, to be used for the construction of Agricultural Training Center as part of the project Sierra Leone Rice Special Agro- Processing Zone (SAPZ) financed by the African Development Bank (AfDB) in the Republic of Sierra Leone.

The community/family/co-ownership donates this land/building in full knowledge of all facts, without any constraint or under any threat, and after having been duly informed in advance that any expropriation for reasons of public utility gives rise to fair and prior compensation.

It is of its own free will with the consent of the members and their beneficiaries and dependents (wife/husband, children, brothers, sisters, etc.) that the Community/family/co-ownership makes this donation and confirms that none of its members will make a claim of ownership in the future. Consequently, the Community/family/co-ownership definitively renounces its right of ownership and those of the beneficiaries on this land/building.

I, the undersigned, confirm that the donation does not affect the livelihood of each member of the Community/family/co-ownership or those of their beneficiaries and dependents, in the immediate or medium or long term. I have decided in all lucidity to donate the said land/building for the benefit of the community/locality Robana to be used exclusively for the construction of the infrastructure mentioned above[2]. Thus, the land/building donated may not under any circumstances be used for other purposes, nor transferred, nor reassigned. Consequently, this donation becomes null and void if the infrastructure for which the donation is made does not materialize within the framework of the project concerned.

In faith whereof, this present report is made and signed to serve and be valid for all rights.

Lieu and date .....

Name and Signature of the Representative of the Community/family/co-ownership: .....

The witnesses[3]

1. Name and Signature: Alpha Brima Bangura

[1] Each witness must be of legal age, in full possession of all their faculties and civil rights and be a beneficiary of the Donor.
[2] Each witness must be of legal age, in full possession of his or her faculties and civil rights and be a member of the community/locality.
[3] Each representative must hold a written legale mandate, a copy of which must be attached to this document.
[4] Upon completion of the installation of the infrastructure/investment the land shall be registered/titled on the name of the beneficiary community/locality.
[5] Each witness must be of legal age, enjoy all faculties and civil rights, and be a member of the community or family or co-ownership.

2. Name and Signature: Foday Sheka Kamara 23-07-25
3. Name and Signature: Mafereh Marie Bangura 23-07-25

The Beneficiary's Agent (legal representative)

Name and Signature: ……………………………………………

Seen with favorable opinion
The Village Chief of Pa Alimamy Sanfaray Bangura 23-07-25
(Signature, name and first name)

Seen with favorable opinion
The District Chief/Mayor of the municipality of ……………………………
(Signature, name and first name)

Kychum VLD

A -2. Form of informed consent deed for donation of land/building by an individual

Between the undersigned:

Honorable PC Alhaji Bai Shebora Yek II residing and domiciled at Kychom in the Kambia district of Municipality of ……N/A……North West……., Department/Province/Region, adult not prohibited enjoying his/her civil rights of nationality Sierra Leonean acting in a responsible capacity as he/she expressly declares himself/herself to be Donor.

ON THE ONE HAND

And the **community / locality** of Kychom represented by Honorable PC Alhaji Bai Shebora Yek II Paramount chief of Samu Chiefdom and also custodian of the land residing and domiciled at Kychom in Kychom Fillie, district of ……Kambia……., Municipality of …N/A…North…West……., Department/Province, Region, also an adult not prohibited enjoying his/her civil and nationality Sierra Leonean rights, as he/she expressly declares himself/herself to be Donee.

ON THE OTHER HAND

IT HAS BEEN AGREED AND MUTUALLY DECIDED AS FOLLOWS:

Honorable PC Alhaji Bai Shebora Yek II, hereby makes a donation, with all guarantees of loss of any property rights for eternity, to the community/locality Kychom, represented by Honorable PC Alhaji Bai Shebora Yek II, Paramount of Samu Chiefdom and also the custodian of the land, who accepts it, a land/building with geographic coordinates N,0856.861 W,01308.707 at the place called Kychom Fillie in the Municipality of ……N/A ….Northwest……. Department/Province/Region of, with an area of .. 100,000 .. m², limited to the North by N,0856.861…W,01308.707……., to the South by N,0893.4857…W,01308.822……., to the East by N,0855.870…W,01308.709……. and to the West by ……N,0857.863…W,01308.801……., as shown on the attached plan on a scale of ……., to be used for the construction of Agricultural Training Center (ATC) within the framework of the project Sierra Leone Rice Special Argo-Processing Zone (SAPZ) Project financed by the African Development Bank (AfDB) in the Republic of Sierra Leone

TERMS OF THE DONATION

The donation is made subject to the charges and conditions that the beneficiary will be required to execute and perform loyally from the day of entry into possession, in particular taxes, all measures and charges to which the land/building may be subject.

I confirm that the donation does not affect my livelihood or that of my beneficiaries and dependents, in the immediate or medium or long term. I acknowledge that I have been duly informed in advance that I am entitled to compensation prior to any expropriation for public utility, and that despite this, in all lucidity and without any pressure, I have decided to donate the said land/building for the benefit of the community/locality Kychom for the construction of the infrastructure Agricultural Training Center (ATC) within the framework of the project Sierra Leone Rice Special Argo-Processing Zone (SAPZ) Project financed by the African Development Bank (AfDB) in the Republic Sierra Leone.

After signing, no beneficiary of Honorable PC Alhaji Bai Shebora Yek II will have the right to claim the land/building ownership thus given.

The duration of this donation is unlimited. The donor therefore gives hereby a valid, good and definitive receipt.

Lieu and date ……,

The Donor	**the Donee [4](For the Community/Locality)**
(Signature, name and first name (followed by *"Read and Approved")*	*(Signature, name and first name* (followed by *"Read and Approved")* (specify quality/function)
Hon. Pc Alhaji Bai S. Yek II	Mohamed Turay for

[3] *Must hold a valid written mandate, a copy of which must be attached to this document.*

Witnesses

From the Donor[5]	**From the Donee[6]**
1. Name and Signature:	1. Name and Signature:
2. Name and Signature:	2. Name and Signature: Mohamed Turay
3. Name and Signature:	3. Name and Signature: ……

Seen with favorable opinion
The Village Chief of ……
(Signature, name and first name)

Seen with favorable opinion
The District Chief/Mayor of the municipality of ……
(Signature, name and first name)

[5] *Each witness must be of legal age, in full possession of all their faculties and civil rights and be a beneficiary of the Donor.*
[6] *Each witness must be of legal age, in full possession of his or her faculties and civil rights and be a member of the community/locality.*

A -3. Outline of the minutes of informed consent for the donation of land by a community/family/co-ownership[7]

I, the undersigned, Honorable PC Alhaji Bai Shebora Yek II, representative of the community/family/co-ownership Kychom acknowledge having donated a piece of land/building with an area of ….. 100,000 ..m² with geographic coordinates N,0856.862 W,01308.707 located in the Village/place of ……Kychom……., District of ……Kambia……. Municipality of ……N/A Northwest……. and Department/Province/Region, to be used for the construction of Agricultural Training Center (ATC) as part of the project Sierra Leone Rice Special Argo-Processing Zone (SAPZ) Project financed by the African Development Bank (AfDB) in the Republic of Sierra Leone.

The community/family/co-ownership donates this land/building in full knowledge of all facts, without any constraint or under any threat, and after having been duly informed in advance that any expropriation for reasons of public utility gives rise to fair and prior compensation.

It is of its own free will with the consent of the members and their beneficiaries and dependents (wife/husband, children, brothers, sisters, etc.) that the Community/family/co-ownership makes this donation and confirms that none of its members will make a claim of ownership in the future. Consequently, the Community/family/co-ownership definitively renounces its right of ownership and those of the beneficiaries on this land/building.

I, the undersigned, confirm that the donation does not affect the livelihood of each member of the Community/family/co-ownership or those of their beneficiaries and dependents, in the immediate or medium or long term. I have decided in all lucidity to donate the said land/building for the benefit of the community/locality Kychom Fillie to be used exclusively for the construction of the infrastructure mentioned above[8]. Thus, the land/building donated may not under any circumstances be used for other purposes, nor transferred, nor reassigned. Consequently, this donation becomes null and void if the infrastructure for which the donation is made does not materialize within the framework of the project concerned.

In faith whereof, this present report is made and signed to serve and be valid for all rights.

Lieu and date 21-July-2025

Name and Signature of the Representative of the Community/family/co-ownership: Hon. PC Alhaji Bai S. Yek II

The witnesses[9]

1. Name and Signature (followed by "Read *and Approved*"):
2. Name and Signature (followed by "Read *and Approved*"):
3. Name and Signature (followed by "Read *and Approved*"):

The Beneficiary's Agent (legal representative)

Name and Signature (followed by "Read *and Approved*"): Hon. PC Alhaji Bai S. Yek II

Seen with favorable opinion
The Village Chief of …… Pa. Almamy Sorie Conteh

Seen with favorable opinion
The District Chief/Mayor of the municipality of …… Hon. P.C. Bai Shebora Yek II

ANNEX 7: CROP COMPENSATION CONSENT FORMS

ROBANNA

Individual negotiation/consent form, between the Project Affected People (PAP) and the Borrower/Developer

Republic of Sierra Leone

A. **Basic data**

- *Project name:* Sierra Leone Rice Special Agro-processing Zone (SAPZ)
- *Sub-project/activity that triggers the resettlement:* Construction of ATC
- *Location of the affected asset (village, municipality, district, region):* Robana, Mambolo chiefdom, Kambia, North west
- *Site or Corridor where the affected asset is/are installed:* Robana Village

B. **Identity of the Project Affected Person (PAP)**

- *PAP's code:* RMKNWR003 Saidu Alimamy Bangura ~~#135~~
- *Name & Surnames:* Saidu Alimamy Bangura
- *Age:* 47
- *Sex:* M
- *Representative of Household or minor?* ✓ if ticked, provide signed /authorization to represent.
- *Physical address:* Robana Village
- *Tel.:* ~~088 039 634~~ / 088-03-96-34
- *Nature & ID no.:* ~~4436221D~~ 1359181

C. **Nature/type and replacement cost[1] of the affected asset**

[1] Replacement is provided in kind for: (i) primary and sole residence and (ii) subsistence food production farm. The payment of cash to the PAP is not recommended in these two cases.

No.	Nature of affected asset	Characteristics/Quantity/Size of the affected asset	Tick	Nominal value ($)	Agreed compensation. (Amount in real value &/or in-kind)
	Land		☐		
	Built land		☐		
	Residential building (primary residence)		☐		
	Building in rent		☐		
	Shop		☐		
	Hangar		☐		
	Fence		☐		
	Grave/graveyard		☐		
	Sacred/worship site		☐		
	....		☐		
	Fallow		☐		
	Livestock farm		☐		
	Fishponds		☐		
	Plantations	500 Mango Trees	☐	4,347	4,347
	Crops		☐		
	...		☐		
	Income-generating activities other than agriculture		☐		
	.....		☐		
	Total real amount due to the PAP (including in-kind compensation)				

D. Nature of the assistance provided to the PAP

No.	*Nature of the assistance*	Tick	*Nominal value ($)*	*Agreed compensation (Amount in real value &/or in-kind)*
1	Temporary rent	☐		
2	Moving expenses	☐		
3	Capacity building	☐	500	500
4	Vocational training	☐		
5	In-kind subsidy/inputs	☐		
n	.....	☐		
x	Other (specify)	☐		
	Total real amount due to the PAP (including in-kind compensation)			

Based on the assessments and negotiations carried out within the context of the resettlement for the works (development/construction) of the project, and by mutual agreement, the PAP receives the sum of [**total amount in full spell**], and/or [**list the in-kind goods/benefits**] as compensation[2].

Project Affected Person (PAP)	**Developer (Expropriating authority)**
	Signature..... [signature] **Date**..... 24/7/2025 **Name & Surname**..... John Sankoh **Function** District M&E officer
PAP's Witness # 1 **Signature**..... [signature] **Date**..... 24/7/2025 **Name & Surname**..... Saidu Alimamy Bangura **Tel**..... 074 698 210 or 077 306 955 **ID no**..... 7705 667 (Voter ID)	Signature/Seal of a Notary or Judicial Officer (if possible) ....

[2] [illegible]

PAP's Witness # 2

Signature..... [signature]

Date..... 24/07/25

Name & Surname..... Alpha Brima Bangura

Tel..... 088-03-96-34

ID no..... 46243210 1359181

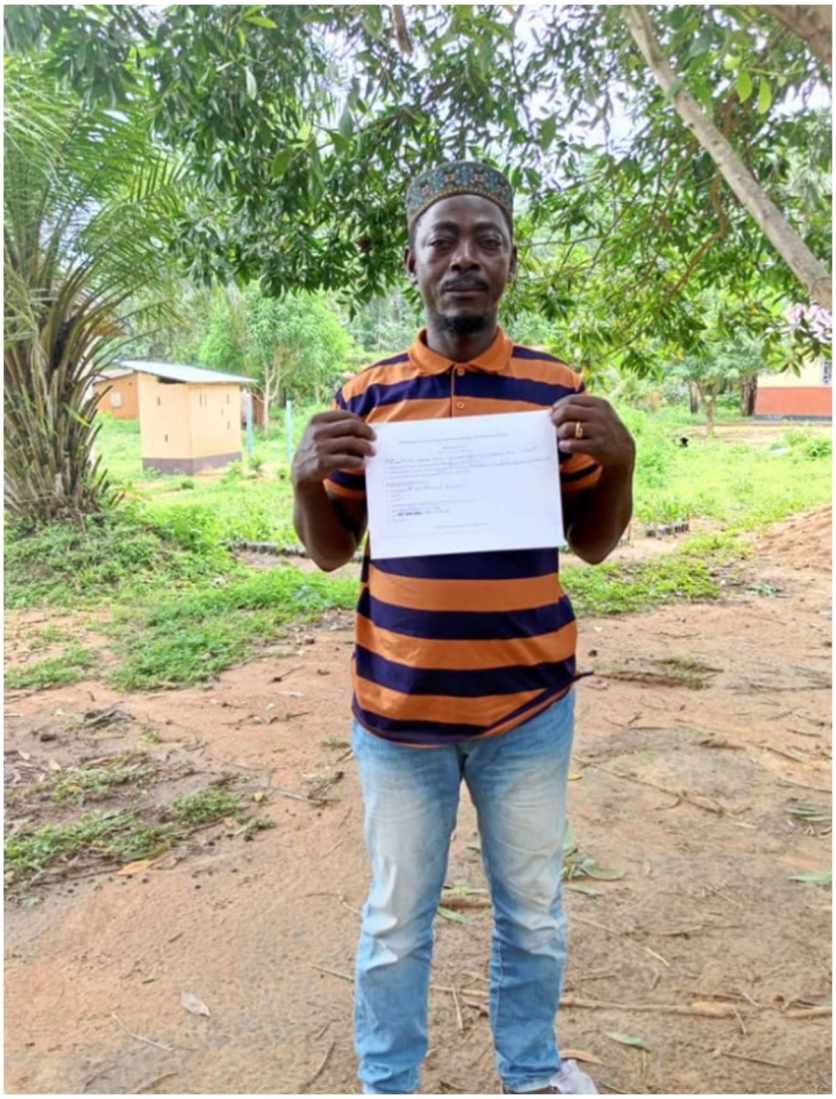


Figure 12: Robanna - Owner of economic trees with signed consent form

Individual negotiation/consent form, between the Project Affected People (PAP) and the Borrower/Developer

Republic of Sierra Leone

A. **Basic data**
- *Project name:* Sierra Leone Rice Special Agro Processing Zone (SAPZ) project
- *Sub-project/activity that triggers the resettlement:* Construction of ATC
- *Location of the affected asset (village, municipality, district, region):* Kychom Fille
- *Site or Corridor where the affected asset is/are installed:* Kychom fille

B. **Identity of the Project Affected Person (PAP)**
- *PAP's code:* KSKXJWIK002
- *Name & Surnames:* Hon. P.C Alhaji Bai S. Yek II
- *Age:* 63 yrs
- *Sex:* M.
- *Representative of Household or minor?* ☐ if ticked, provide signed /authorization to represent.
- *Physical address:* Kychom town.
- *Tel.* 076616951
- *Nature & ID no.:* 133050Q

C. **Nature/type and replacement cost[1] of the affected asset**

[1] Replacement is provided in kind for: (i) primary and sole residence and (ii) subsistence food production farm. The payment of cash to the PAP is not recommended in these two cases.

1	Temporary rent	☐		
2	Moving expenses	☐		
3	Capacity building	☐	350	350
4	Vocational training	☐		
5	In-kind subsidy/inputs	☐		
n	.....	☐		
x	Other (specify)	☐		
Total real amount due to the PAP (including in-kind compensation)				

Based on the assessments and negotiations carried out within the context of the resettlement for the works (development/construction) of the project, and by mutual agreement, the PAP receives the sum of **[total amount in full spell]**, and/or **[list the in-kind goods/benefits]** as compensation[2].

Project Affected Person (PAP)	Developer (Expropriating authority)
Hon. P.C. Bai S. Yek II	Signature..... Date 24/7/2025 Name & Surname John Sankoh Function District M&E Officer
PAP's Witness # 1 Signature..... Date 24/07/25 Name & Surname Abubakarr Kamara Tel. 030 54 30 55 ID no. TFWISCKWY	Signature/Seal of a Notary or Judicial Officer (if possible) .....
PAP's Witness # 2	

[2] Like the identification and assessment of asset and damages suffered as a result of the project, this agreement was signed without any constraint or threat of reprisals against the affected person, and with full knowledge of the implications and effects of the signatures affixed.

No.	Nature of affected asset	Characteristics/Quantity/Size of the affected asset	Tick	Nominal value ($)	Agreed compensation. (Amount in real value &/or in-kind)
	Land		☐		
	Built land		☐		
	Residential building (primary residence)		☐		
	Building in rent		☐		
	Shop		☐		
	Hangar		☐		
	Fence		☐		
	Grave/graveyard		☐		
	Sacred/worship site		☐		
	....		☐		
	Fallow		☐		
	Livestock farm		☐		
	Fishponds		☐		
	Plantations	500 oil palm, 100 mango trees 50y...	☐	5,652	5,652
	Crops		☐		
	...		☐		
	Income-generating activities other than agriculture		☐		
	.....		☐		
	Total real amount due to the PAP (including in-kind compensation)				

D. Nature of the assistance provided to the PAP

No.	Nature of the assistance	Tick	Nominal value ($)	Agreed compensation (Amount in real value &/or in-kind)

Signature .....

Date 24/07/25

Name & Surname Fa Alimamy Sillah

Tel 076 56 85 20

ID no. GOZW4ARH

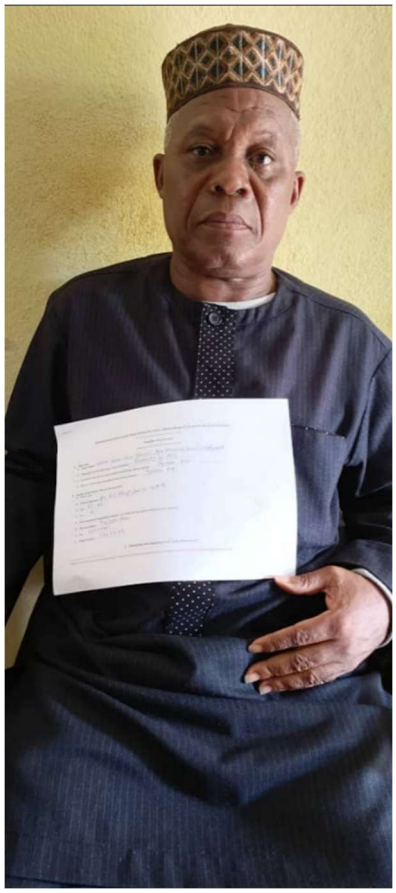


Figure 13: Kychu Owner pf Economic Trees with Compensation Consent Form