# SIERRA LEONE

# MINISTRY OF WATER RESOURCES AND SANITATION



# SIERRA LEONE WATER SECURITY AND WASH ACCESS IMPROVEMENT PROJECT

(P507588)

# AS PHASE 1 OF THE MULTI-PHASE PROGRAMMATIC APPROACH

Sierra Leone Water Security and WASH Access Improvement program

# ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

MAY 8, 2025

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## **Abbreviations and Acronyms**

AM	Accountability Mechanism
ASSL	Audit Service Sierra Leone
AWPB	Annual Work Plans and Budgets
BCR	Benefit-Cost Ratio
CE	Citizen engagement
CWIS	City Wide Inclusive Sanitation
DA	Designated Account
DFIL	Disbursement and Financial Information Letter
EIRR	Economic Internal Rate of Return
EPASL	Environment Protection Agency Sierra Leone
ESMP	Environmental and Social Management Plan
EWRC	Electricity and Water Regulatory Commission
E&S	Environmental and Social
FCC	Freetown City Council
FSM	Fecal Sludge Management
FSTP	Fecal Sludge Treatment Plant
GBV	Gender-Based Violence
GoSL	Government of Sierra Leone
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GVWC	Guma Valley Water Company
IFR	Interim Financial Report
MWRS	Ministry of Water Resources and Sanitation
NDC	Nationally Determined Contribution
NPV	Net Present Value
NRW	Non-Revenue Water
NWRMA	National Water Resources Management Authority
ODF	Open-Defecation Free
PCE	Private Capital Enabling
PCM	Private Capital Mobilization
PEFA	Public Expenditure Financial Accountability
PFM	Public Financial Management
PIM	Project Implementation Manual
PIR	Policies, Institutions, Regulations
PPP	Public-Private Partnership
PDO/ PrDO	Project / Program Development Objective
PSC	Project Steering Committee
RAP	Resettlement Action Plans
RF	Results Framework
SALWACO	Sierra Leone Water Company
SEA/SH	Sexual Exploitation, Abuse, and Sexual Harassment

SEP	Stakeholder Engagement Plan
STEP	Systematic Tracking of Exchanges in Procurement
UIFR	Unaudited Interim Financial Report
WA	Withdrawal Application
WARDC	Western Area Rural District Council
WASH	Water, Sanitation and Hygiene
WASHIT	WASH Project Implementation Team of the MWRS

## **Executive Summary**

The World Bank will be supporting Ministry of Water Resources and Sanitation (MWRS) in implementing the Sierra Leone Water Security and Wash Access Improvement Project. By using the Multiphase Programmatic Approach, the overall Program Development Objective (PrDO) is to improve water security and increase access to Water, Sanitation and Hygiene (WASH) services in selected areas in Sierra Leone, expected to mobilize at least US\$180 million in three phases.

This Environmental and Social Management Framework (ESMF) is prepared for Phase 1 with a proposed objective to "Strengthen sector institutions and capacity, improve operational performance of the water supply service provider and promote sanitation in the Western Area of Sierra Leone". Phase 1 will focus on: (i) securing the foundations of good water management, through critical institutional, regulatory and capacity strengthening of the main water sector institutions; (ii) improving GVWC's operational efficiency, cost recovery and financial sustainability; (iii) planning water resources mobilization and protecting the Western Area Peninsula National Park, a mountain range and main freshwater resource in the Western Area, increasingly threatened (in quantity and quality) by urbanization pressures, illegal logging and mining, exacerbated by climate change; (iv) building toilet facilities in critical areas including schools and health centers for improved human development; (v) developing fecal sludge treatment capacity and management; and (vi) preparing next phase investments for water security and service improvements.

The proposed Project is structured around six components in table 1.

Component	Description	US\$
Component 1	Institutional Strengthening and Capacity Building	US\$ 10 million
Subcomponent 1.1	Policy, Institutions, Regulation Strengthening	US\$ 3 million
Subcomponent 1.2	Capacity Building and Knowledge Development	US\$ 2.0 million
Subcomponent 1.3	Construct a WASH Administrative Center	US\$ 5 million
Component 2	Water Resources Management Improvement	US\$ 7 million
Subcomponent 2.1	National Water Resources Master Plan and Sector Knowledge Enhancement	US\$ 5 million
Subcomponent 2.2	Raising awareness on catchment protection and rejuvenation need	US\$ 2 million
Component 3	Priority Investments in Urban Water Supply	US\$ 30 million
Subcomponent 3.1	Strengthening GVWC management tools and improving service efficiency	US\$ 12.3 million
Subcomponent 3.2	Reducing Non-Revenue Water (NRW) and Upgrading Key Infrastructure	US\$ 17.7 million
Component 4	Urban Sanitation Service Delivery Improvement	US\$ 10 million
Subcomponent 4.1	Improving Sanitation in the Freetown City Council Area	US\$ 4.8 million
Subcomponent 4.2	Improving Sanitation in the WARDC Area	US\$ 3.7 million

#### Table 1: Summary of Project Components

project activities will take place in across the Western Area and limited parts of WARD C. Specific locations

The

Subcomponent 4.3	Prepare Nationwide Sanitation Development	US\$ 1.5 million	
	Campaign		
Component 5	Project Management	US\$ 3 million	
Component 6	Contingency Emergency Response Component	US\$ 0 million	

subproject activities are not known at this stage. That notwithstanding, the country has made notable progress in water sector planning, demonstrated by key initiatives such as the National Water Resources Management Agency (NWRMA) Act No. 5 of 2017 and the NWRMA Strategic Development Plan. When there is adequate information about the project locations, and detailed scope of investment, the project environmental and social (E&S) risks will be reassessed based on the project characteristics and determine if it needs revision to upgrade the E&S risk rating and additional Environmental and Social (E&S) instruments as needed.

The ESMF presents methodologies for developing and implementing environmental and social risk management instruments for project activities/sub-projects, including how to conduct environmental and social screening of activities/sub-projects (Appendix 1), identify and assess potential environmental and social risks and impacts and proffer mitigation measures for the identified environmental and social impacts/risks. It covers a broad description of the project, existing policy and legal frameworks in Sierra Leone, relevant World Bank Environmental and Social Standards (ESSs), baseline information and conditions of the Western Area and WARD C, broad environmental and social risks and impacts, their accompanying mitigation measures, the implementation arrangements and capacity building programs.

#### **Environmental and Social Baseline Conditions**

The baseline environmental and social description of Sierra Leone and specifically the Western Area and WARD C has been provided as part of the ESMF. The local climate is tropical, with coastal areas having hot and humid weather and inland areas having a more temperate climate with an average annual temperature is 26.7°C. Sierra Leone has abundant water resources and receives an average of 2,526 millimeters of rain annually. Water and sanitation infrastructure are sensitive to storm surge, sea level rise and flooding. The environmental and social baseline focuses on the general environmental and social issues of relevance to the project captured in Chapter 3.

#### Potential Risks and Impacts and Proposed Mitigation Measures

The ESMF has been prepared to identify the potential environmental and social risks and impacts of proposed project activities and propose suitable mitigation measures to manage these risks and impacts. At the time of project preparation, the specific sites that the project would be implemented are not known in sufficient details.

The Project's Environmental and Social (E&S) risk rating is Substantial due to the nature and scale of the activities, the sensitivity of the environmental factors and weak institutional capacity of the client to manage associated environmental and social risks.

**Positive Impacts:** The Project is expected to have positive impacts nationwide, significant health benefits to the population. It will contribute towards institutional strengthening and human capital development for service delivery, tools and facilities for water resource management, improvement in urban water and sanitation delivery.

of

The adverse potential environmental and social risks are associated with construction activities and civil works under components 2, 3 & 4. The potential adverse risks and impacts are discussed below.

#### Potential Adverse Environmental and Social Risks and Impacts

**Design phase:** Designing Fecal Sludge Treatment Plants (FSTPs) and toilet facilities involves potential environmental risks and impacts. Inappropriate site selection may lead to soil erosion and habitat disruption in sensitive areas. Inadequate design of FSTPs may affect groundwater quality and poorly treated effluent discharged from FSTPs can pollute water bodies for communities who rely on groundwater and streams for drinking, release of obnoxious odors and greenhouse gases such as methane and carbon dioxide. Poor engineering designs of sludge handling and disposal systems can lead to the accumulation of untreated or partially treated sludge and waste posing health risks to nearby communities, infectious disease transmission and health and safety risks from handling sewage.

The Project does not involve dam construction, but it will finance technical and feasibility studies, detailed designs, and preparation of tender documents for some dams (the existing Guma and Kongo dams and at the open-air Babadorie circular water storage reservoir). Studies should consider potential environmental impacts on local ecosystems and communities, impact of the dams on downstream water flow and availability, sedimentation patterns in the reservoir and downstream areas, water quality monitoring programs, opportunities to reduce adverse risks and impacts on biodiversity and ecosystem, flood management and early warning systems to protect downstream communities and infrastructure and climate change considerations.

**Construction phase:** Construction activities associated with the construction of FSTPs, toilet facilities and related treatment, transmission & distribution infrastructure may cause , water and soil contamination due to the improper disposal of construction waste, water pollution from construction runoff into nearby water bodies, noise and dust during excavation and transportation of materials and community and occupational health and safety risks, disrupt local habitats, traffic disruptions, generation of construction waste and the handling and disposal of fecal sludge.

The implementation of the distribution or transmission network will exclude replacement of old asbestos containing pipes, to avoid exposing workers and the community to health risks. Where such replacements are unavoidable, the handling of these pipes shall be consistent with the Asbestos Management Plan (Sample Asbestos Management Plan in Appendix 6) to be prepared for the project.

The construction of an FSTP in Freetown may require land acquisition and disadvantaged groups must be included in consultations. Civil works could induce labor influx and GBV risks. The use of gender disaggregated WASH facilities with handwashing in selected schools, hospitals/health centers, marketplaces, bus stations and public institutions also needs to mitigate GBV risks. The Project may cause temporary and permanent land acquisition and displacement. The table below describes the potential environmental and social risks and impacts of the project and describes broad mitigation measures outlined in this ESMF which align with the World Bank's ESF.

**Operational and Maintenance phase:** The operation and maintenance of Fecal Sludge Treatment Plants (FSTPs) and toilet facilities, along with related treatment, transmission, and distribution infrastructure may lead to surface and groundwater pollution due to the potential release of untreated or inadequately treated wastewater, air pollution and offensive odor from the operations of the FSTPs, risk of exposure to

pathogens, hazardous chemicals, and accidents, spread of waterborne diseases due to the inadequate management of fecal sludge.

Table 2 presents the potential E&S risks and impact, and broad mitigation measures in alignment with the World Bank's ESF.

Potential E&S Issue	Environmental and Social Prevention/Mitigation Measures	Responsible Party
Waste Generation from	Prepare and implement a Waste Management Plan (WMP), as	Contractor
construction activities	part of the ESMP prepared for the Project, to manage	MWRS-WASHIT &
	hazardous and non-hazardous waste, consistent with ESS3.	other IA
	Implement Waste Management Plan (Sample WMP in	
	appendix 7)	
Noise during construction	<ul> <li>Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance.</li> <li>Use when needed and feasible noise-control methods such as fences, barriers or deflectors (such as muffling devices for combustion engines or planting of fast-growing trees).</li> </ul>	Contractor MWRS-WASHIT & other IA
	<ul> <li>Minimize project transportation through community areas.</li> <li>Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and residential areas to lessen the impact of noise to the living quarters.</li> </ul>	
Occupational Health and	<ul> <li>Prepare and implement an OHS Management Plan to assess</li> <li>and manage the OUS risks and impacts of the Preject, as part</li> </ul>	
construction and	of the ESME and ESIAs /ESMEs	other 1A
operational phases	Require contractors and subcontractors to propage and	other IA
	<ul> <li>Require contractors and suscentractors to prepare and implement OHS Management Measures or Plan in accordance with requirements described in the ESMF and ESIAs/ESMPs</li> <li>Implement OHS Management plan (Sample OHS Plan in Appendix 10)</li> </ul>	
Community Health and	• Incorporate measures to manage traffic and road safety risks	
Safety Risks and Impacts	as required in the ESMP	other IA
during construction and operationsInclude mitigation measures in the ESIAs/ESMPs on the risks of labor influx, response to emergencies		
Solid Waste Management	Solid waste depots/disposal need to be located on hard-	
during both the	standing areas that prevent waste entering surface or	MWRS-WASHIT &
construction and	groundwater.	other IA
operational phases	and/or roofed/covered to prevent storm water contamination. Wastes need to be emptied regularly.	
Biodiversity Risks and	Screen and assess each of proposed activity/subproject of its	MWRS-WASHIT &
Impacts during	risks and impacts on biodiversity and living natural resources	other IA
construction	e.g (erecting physical barriers along the greenbelt to protect the Guma dam catchment in a protected national park around Freetown, the Western Area Peninsula National Park (WAPNP). Where the environmental and social assessment has identified potential risks and impacts on biodiversity or habitats, prepare a Biodiversity Management Plan (BMP) either as stand-alone or as part of the ESMP.	

Table 2: Generic E&S risks and impacts and mitigation measures

Asbestos Containing Materials (ACM) during construction	<ul> <li>If asbestos is found in pipes, as it risks exposing workers and the community to respiratory hazards an Asbestos Management Plan should be prepared (Sample Asbestos Management Plan on Appendix 6)</li> <li>If asbestos or asbestos containing materials (ACM) are found at a construction site, they should be clearly marked as hazardous waste.</li> </ul>	MWRS-WASHIT & other IA Contractor
	<ul> <li>Prior to removal, if removal is necessary, ACM should be treated with a wetting agent to minimize asbestos dust.</li> <li>If ACM is to be stored temporarily, it should be securely placed inside closed containers and clearly labeled.</li> <li>Removed ACM must not be reused.</li> </ul>	
Dam safety assessment/inspection during the studies, detailed designs phase	<ul> <li>There are no planned supports for rehabilitation or construction of dam, however, the support of the enforcement of policies protecting the Western Area National Park and Guma Valley Water Reserve Dam may lead to conflicts requiring the preparation of Security Risk Assessment and Management Plan</li> </ul>	MWRS-WASHIT & other IA
Changes in natural water flow regimes and flooding risk associated with increasing raw water storage reservoir capacity and rehabilitating treated water service reservoirs	<ul> <li>Prepare and Implement ESIAs can help identify potential risks and inform the development of mitigation strategies.</li> <li>Design reservoirs to minimize habitat disruption and promote ecological balance.</li> <li>Implement monitoring systems to track environmental changes</li> </ul>	MWRS-WASHIT & other IA Contractor
Generation of wastewater and fecal sludge from sanitation facilities and treatment processes	<ul> <li>Implement measures to prevent pollution of surface and groundwater sources, including proper management of wastewater and fecal sludge.</li> <li>Ensure proper treatment and disposal of fecal sludge to prevent contamination of water sources</li> </ul>	MWRS-WASHIT & other IA
Temporary/permanent land acquisition and restriction on land use	<ul> <li>Prepare &amp; implement RP as per the principles laid down in the RF, SL land laws and ESS5 requirements.</li> <li>Develop &amp; implement Process Framework, as set out in the RF.</li> </ul>	MWRS-WASHIT & other IA
Labor influx implying potential SEA/SH risk	<ul> <li>Prepare &amp; implement SEA/SH Prevention &amp; Response Action Plan, with GBV responsive GRM &amp; Code of Conduct (CoC)- Annex 14: for sample CoC for contractor's personnel.</li> <li>Prepare &amp; implement Labor Management Procedures, with GBV responsive GRM, Code of Conduct (CoC)</li> </ul>	MWRS-WASHIT & other IA

To ensure that the mitigation measures are implemented and monitored, environmental and social risk management instruments such as Environmental and Social Screening Reports (MWRS-WASHIT will screen all project activities/sub projects for their environmental and social risks and impacts for environmental and social risk categorization). This will enable MWRS-WASHIT to prepare the appropriate environmental and social risk management instruments for approval by the World Bank and the respective national authorities prior to the commencement of a sub project/activity.

Environmental and Social Impact Assessments (ESIAs), and site specific Environmental and Social Management Plans (ESMPs) will be prepared by Project Implementation Units (MWRS-WASHIT) for approval by the Bank. Subsequently, MWRS-WASHIT will be required to disclose, implement and report

on implementation progress of the approved ESIAs/ESMPs. MWRS-WASHIT will ensure that Codes of Conducts and Environmental and Social Clauses are inserted into contract documents and reporting mechanisms.

#### Institutional Arrangements for ESMF Implementation

MWRS will be responsible for Project implementation, including ESF. It will directly implement component one on institutional strengthening and integrating the Sanitation mandate and capacity building. MWRS will collaborate with other institutions such as the National Water Resources Management Agency (NWRMA), the Guma Valley Water Company (GVWC), Freetown City Council (FCC) and Western Area Rural Development Council (WARD C) to implement components relevant to their mandates. Nationally, MWRS is assisted by institutions established by Acts of Parliament; namely, EPA Sierra Leone (EPASL), Ministry of Environment and Climate Change (MoECC) and the National Protected Area Authority (NPAA). EPASL requires MWRS to obtain an environmental impact assessment (EIA) license before the commencement of civil works.

MWRS has designated from existing staff and recruited specialists that have worked on other Bankfinanced projects to serve as environmental (one), social (one), and GBV/SEA/SH specialists (one). MWRS has assigned specialists in environmental, social, and GBV/SEA/SH areas, with one specialist for each field sourced from different sectors within the existing staff.

#### **Capacity Building and Training for ESMF**

Training programs to build capacity for the implementation of mitigation and management measures outlined in the ESMF and the cost associated with capacity building programs have been included in the ESMF implementation budget estimated at Three hundred seventy thousand United States Dollars (**US\$ 370,000**). These include training programs in grievance mechanisms (GM), SEA/SH and Occupational Health and Safety, Environmental and Social Risk Management Procedures, E&S monitoring and reporting, Incident and accident reporting and the World Bank Environmental and Social Framework. The details are summarized in Table 14 of the ESMF.

#### **Estimated Budget**

It is estimated that a total amount of Two million five hundred forty-one thousand thirty-two United States Dollars (**US\$ 2,541,032**) will be required to implement activities identified in the ESMF throughout the project, however, details on the budget will be included in the prepared ESMPs. These estimates only serve as a potential guideline for the preparation of site-specific ESMPs which will have costed expenditures required to implement the ESMP. The details are summarized in Table 15 of the ESMF. These figures are indicative and MWRS-WASHIT will prepare subsequent budgets as more clarity is obtained on project activities.

# 1. Introduction

#### **1.1 Background Information**

Sierra Leone has impressive water resources yet faces a physical and economic water scarcity challenge. The country receives an average of 2,526 millimeters of rain annually. This is the highest in the West Africa sub-region in addition to approximately 160 billion cubic meters of annual renewable water. Despite this abundance, the actual utilization highlights scarcity at a withdrawal rate of 0.1 percent amidst limited water storage capacity, poor water governance and limited investment in the WASH sector. Sierra Leone faces systemic economic water scarcity primarily due to limited water storage capacity, poor water governance and limited investment.

The situation is compounded by population growth. While Sierra Leones population has doubled between 2000 and 2022, the same cannot be said for access to WASH which has only recorded marginal increases. This highlights the need for improved water management strategies to harness the underutilized resource and ensure water security for all purposes. Sierra Leone faces critical gaps in WASH service delivery, which contributes to hindering human development and exacerbates poverty. The diagnostic report highlights six key binding constraints to WASH service delivery and provides recommendations. (i) There is inadequate access and sustainability of existing water services (ii) The sanitation sector is the least developed in Sierra Leone (iii) Inadequate sector financing and investment (iv) Poor Sector Coordination (v) Sector service provision could be more efficient (vi) Sector capacity gaps (vii) Despite significant challenges, achieving Sustainable Development Goal (SDG) 6—universal access to clean water, sanitation, and hygiene—requires a transformational shift from individual projects to a comprehensive programmatic approach.

#### 1.2 Purpose of the Environmental and Social Management Framework (ESMF)

The Sierra Leone Water Security and Wash Access Improvement Project will be implemented in the Western Area. The purpose of this ESMF is to guide the implementing Agencies, involved in the Project which include the Ministry of Water Resources and Sanitation, the National Water Resources Management Authority, the Guma Valley Water Company, Sierra Leone Water Company, the Freetown City Council, and the Western Area Rural Development Council in environmental and social (E&S) screening and subsequent assessments and management of E&S risks and impacts during project design and implementation, including development of site-specific Environmental and Social Management Plans (ESMPs) in accordance with the World Bank Environmental and Social Framework (ESF).

#### **1.3 Rationale for an Environmental and Social Management Framework**

The Project's Environmental and Social (E&S) risk rating is substantial. The Project aims to strengthen institutions, develop human capital, improve urban water and sanitation, and eradicate open defecation. Potential risks emanate from Project-funded activities in water infrastructure, pollution, disease transmission from fecal sludge handling, and weak institutional capacity to manage these risks. The Project will prepare E&S framework instruments, such as ESMF, SEP and RPF to manage and mitigate subproject specific risks and impacts. Site specific risk management plans will be prepared prior to the start of any Project-related physical works.

The rationale for developing the framework is based on the consideration that sites and designs for all sub-projects will only be identified and prepared during the implementation of MWSP. Therefore, detailed site investigations will be carried out as part of identifying specific project activities and related designs at the selected locations to ascertain the precise nature of the environmental and social impacts. The ESMF will provide the necessary background for environmental and social considerations, a checklist of potential issues of the project activities to be considered and built into the design of the project so that socially sustainable implementation can take place, including environmental and social screening of subprojects and guidance on the preparation of specific assessments and plans. Site specific risk management plans will be prepared prior to the start of any Project-related physical works.

#### 1.4 Aim and Objectives of the Environmental and Social Management Framework

This Environmental and Social Management Framework (ESMF) is developed to support the environmental and social due diligence provisions for activities financed by the World Bank in the Sierra Leone Water Security and Wash Access Improvement Project. The ESMF is intended to be used as a practical tool during project formulation, design, implementation, and monitoring of the project. For ensuring good environmental management in the proposed MWSP, the ESMF will provide guidance on pre-investment works/studies (such as environmental and social screening, environmental and social assessment, environmental and social management plans, etc.), provide a set of steps, process, procedure, and mechanism for ensuring adequate level of environmental and social consideration and integration in each investment in the project-cycle; and describes the principles, objectives and approach to be followed to avoid or minimize or mitigate impacts. More specifically, the ESMF aims to

- 1. assess the potential environmental and social risks and impacts of the proposed Project and propose mitigation measures.
- 2. establish procedures for the environmental and social screening, review, approval, and implementation of activities.
- 3. specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social issues related to the activities.
- 4. identify the staffing requirements, as well as the training and capacity building needed to successfully implement the provisions of the ESMF.
- 5. address mechanisms for public consultation and disclosure of project documents as well as redress of possible grievances; and
- 6. establish the budget requirements for implementation of ESMF.

This ESMF should be read together with other plans prepared for the project, including the Stakeholder Engagement Plan (SEP), the Environmental and Social Commitment Plan (ESCP), Social Assessment (including covering the TA aspect), Labor Management Procedures (LMP), SEA/SH Prevention and Response Action Plan, and Resettlement Framework (RF).

#### 1.5 Study Approach and Methodology

This ESMF follows the World Bank Environmental and Social Framework (ESF) as well as the national laws and local laws and regulations of Sierra Leone. The following approach and techniques were used in the preparing the ESMF:

- Review of the project details and data gathering through desktop study.
- Review of the policy and regulatory requirements

- Reconnaissance field visit and initial scoping and screening to determine the key environmental and social parameters and aspects that are likely to be impacted by the project activities.
- Stakeholder consultations with the relevant sector institutions including Ministries, Departments and Agencies (MDAs).
- Review and incorporation of comments and feedback from stakeholders into ESMF; and
- Approval of the ESMF for disclosure.

# 2. Project Description

#### 2.1 Project Overview

The project will follow a multi-programmatic approach (MPA) and will contribute to addressing climate change exacerbated floods, droughts, and heatwaves through two main aspects: improving Water Security and Water Resources Management (Components 1 and 2) and improving access and efficiency of WASH services (Components 3 and 4). The initial phase of the Project will focus on the Western Area and will strengthen institutions and build capacity and prioritize no-regret investments to improve water sector performance with direct impacts on Human Development and Human Capital improvement.

## 2.2 Program Framework

The MPA is structured into three phases that progressively build upon one another to deliver both immediate service improvements and long-term water security gains. This phased approach is designed to improve water and sanitation services while strengthening institutional capacity, ultimately contributing to improving human capital outcomes and Human Development Index in Sierra Leone. The overall Program Development Objective (PrDO) is to improve water security and increase access to Water, Sanitation and Hygiene (WASH) services in selected areas in Sierra Leone.

#### 2.3 Project Development Objectives

**The proposed PDO for Phase 1** is to "Strengthen sector institutions and capacity, improve operational performance of the water supply service provider and promote sanitation in the Western Area of Sierra Leone". Phase 1 will focus on: (i) securing the foundations of good water management, through critical institutional, regulatory and capacity strengthening of the main water sector institutions; (ii) improving GVWC's operational efficiency, cost recovery and financial sustainability; (iii) planning water resources mobilization and protecting the Western Area Peninsula National Park, a mountain range and main freshwater resource in the Western Area, increasingly threatened (in quantity and quality) by urbanization pressures, illegal logging and mining, exacerbated by climate change; (iv) building toilet facilities in critical areas including schools and health centers for improved human development; (v) developing fecal sludge treatment capacity and management; and (vi) preparing next phase investments for water security and service improvements.

#### **2.4 Project Components**

The Project is designed to increase access to water supply and sanitation services, improve the operational performance of water service providers, and enhance water resources management in Sierra Leone. Its components are mutually reinforcing, creating a platform for both immediate service improvements and long-term capacity building that will drive water security. The proposed Project is structured around six components:

#### Component 1: Institutional Strengthening and Capacity Building (US\$10 million).

This component will be implemented by the MWRS. Activities supported by this component will include technical assistance, equipment and consulting services.

<u>Subcomponent 1.1: Policy, Institutions, Regulation Strengthening (US\$3.0 million)</u> will: (i) review, complete and consolidate existing sector policies and regulations including the 2010 Water Policy and the draft 2021

WASH Policy to ensure that they contribute to delivering on the WASH priorities; (ii) review policies and regulations and advise on PPP options to leverage private sector value addition to improve the quality-ofservice delivery and to extend access to WASH services in Sierra Leone; (iii) develop sanitation and fecal sludge management guidelines and design standards for energy-efficient and climate-smart WASH systems; (iv) support the MWRS in operationalizing its absorption of sanitation mandate by developing its organizational structure, responsibility-sharing arrangements and essential management systems and tools to be able to deliver on its mandates; (v) strengthen the national water quality monitoring and surveillance system and routine monitoring and sector data collection and consolidate sector data into a national monitoring and evaluation platform; (vi) strengthen the role of the MWRS in coordinating WASH sector interventions across national and local governments; and (vii) support logistical aspects related to regular Donor coordination group meetings involving all development partners and NGOs involved in the sector to ensure information sharing, promote coordinated approaches and ensure alignment with GoSL's priorities.

<u>Subcomponent 1.2: Capacity Building and Knowledge Development (US\$2.0 million)</u> will assess the institutional and staff capacity building needs of MWRS, NWRMA, GVWC, SALWACO, SLEWRC, Freetown City Council (FCC) and WARDC. It will develop a comprehensive institutional and staff capacity building plan and design adapted delivery mechanisms for each institution and agency involved. This sub-component will include equipping one or more existing training centers and develop training material and curriculum for entry level staff, vocational and on-the-job trainings for existing technical and managerial staff, and evidence-based decision-making course for executives and senior officials. Specific training materials, processes and incentives targeted to women will be devised to better integrate gender strategy into curriculum development activities. It will also seek to develop or strengthen partnerships with academic institutions to design curriculum for a master's degree program on water management with the university of Sierra Leone, to train future water professionals, including on climate change adaptation in the water sector. This component will also develop a web-based system consolidating knowledge documents and sector data. Parts of the capacity building activities may be delivered through the PPPs for WASH service improvement and extension.

<u>Subcomponent 1.3: Construct a WASH Administrative Center (US\$5.0 million)</u> will procure and construct a WASH Administrative Center to host the MWRS, NWRMA and SLEWRC, as the previous MWRS building burnt down in 2023. This Administrative Center will seek to showcase good water and wastewater management and energy efficiency (e.g. rainwater harvesting for toilets and watering green areas), so it can act as a demonstration and learning site. It will provide laboratory equipment to allow regular water quality measurements to detect industrial or domestic pollutants.

Component 1 will enhance the country's resilience to climate change–exacerbated risks such as floods, droughts, extreme heat, and landslides by improving water governance, capacity building and strengthening relevant government institutions. Improved governance will contribute to watersheds and ecosystems preservation, and higher water quality.

#### Component 2: Water Resources Management Improvement (US\$7 million).

This component will be managed by the NWRMA, with support and oversight by the MWRS. It will support activities to improve water resources planning and mobilization and to protect the Western Area Peninsula National Park, the only water resource for the Western Area. This will be done through technical assistance and consultants services, based on a collaborative and consultative approach. This component will also promote data-driven decision-making, stronger regulation, and community engagement—key pillars in improving WRM in Sierra Leone.

<u>Subcomponent 2.1: National Water Resources Master Plan and Sector Knowledge Enhancement (US\$5</u> <u>million).</u> Activities under this subcomponent will develop a national Water Resources Master Plan. The process will include updating the existing national inventory of ground- and surface water abstraction points in Sierra Leone, informing the hydrological and hydrogeological characteristics, determining the water balance in the country's various River Basins, estimating the water resources and groundwater potential of each River basin, and mapping and documenting land and water use patterns of major River Basins. The masterplan will also examine concrete measures to enforce the implementation of existing WRM Regulations, in particular the annual 'licensing to operate' for all drilling companies operating in Sierra Leone, and the need to obtain a permit and to register any new borehole into the national inventory. This activity is a prerequisite to securing the water resources necessary for the subsequent phases of the Program.

<u>Subcomponent 2.2: Raising awareness, catchment protection and rejuvenation need (US\$2 million).</u> This subcomponent will include three main activities. First, it will fund erecting billboards to demarcate the greenbelt boundary in areas requiring raising awareness of the limit beyond which human activity means encroaching and increase monitoring and surveillance. Second, it will build protective barriers to protect the catchment of selected water supply weirs either in the buffer zone outside the greenbelt or within it and which are under increasing encroachment pressure, for instance the Hasting Police Training Center weir located in the buffer zone. Third, it will prepare a map suggesting catchment restorative nature-based solutions (e.g., afforestation, soil conservation) to be implemented to restore the forest cover of the greenbelt in places where it has been degraded. To implement these activities, NWRMA will collaborate with MWRS, GVWC, Ministry of Environment and Climate Change (MoECC), the National Protected Area Authority and NGOs active in this field, such as the Catholic Relief Services.

By enhancing water resources planning, monitoring, and protection, Component 2 will support long-term water security. In addition, it will improve resilience to floods—by reducing the potential impact of floods (because water will be less contaminated) and droughts, as enough clean water will become available when and where needed, and water supply service disruptions will be significantly reduced.

#### Component 3: Priority Investments in Urban Water Supply (US\$30 million).

This component will be implemented by GVWC, with oversight by MWRS. It will finance work, goods and consultants' services aimed at improving GVWC's operational efficiency, water supply service delivery in Greater Freetown and cost recovery and creditworthiness. It will complement an ongoing project of the Africa Development Bank (AfDB) and other development partners to extend access to safely managed water supply in GVWC's service area.

Subcomponent 3.1: Strengthening GVWC management tools and improving service efficiency (US\$12.3 million). This subcomponent focuses on updating GVWC's commercial processes, improving customer engagement, and expanding metering programs to reduce commercial losses and boost revenue. This will be achieved by: (i) upgrading the existing Engineering Design And Management Systems (EDAMS) software to address key business challenges including asset management, commercial losses and energy efficiency and providing training for GVWC staff (US\$0.3m); (ii) procuring about 42,000 smart domestic meters (US\$7.8m); (iii) implementing parallel PPPs to install smart domestic meters to generalize metering in GVWC's service area, thereby reducing commercial losses and to establish NRW baseline levels to be able to monitor and reduce physical losses (see subcomponent 3.2) (US\$0.7m); (iv) update customer database and GIS mapping in the process to maximize revenue generation, which is essential for better demand management as well as increasing cost recovery and profitability (US\$0.1m); (v) carry out a full safety inspection of the Guma Dam and implement short and medium term dam safety measures recommended (US\$0.8); (vi) purchase of water bowser trucks to improve the supply of water to water

kiosks located in low-income communities in the Western Area currently using unsafe water sources, thereby increasing coverage and lowering vulnerability to water borne diseases (US\$1.0m); (vii) finance feasibility studies, technical designs and tender documents for selected dams construction and priority investments, all or part of which could be implemented in phase 2 and/or 3 of the MPA, or through parallel financing (US\$1.4m); and (viii) recruit a Panel of experts to review the Guma dam safety inspection and technical studies for new dam construction (US\$0.2m).

Subcomponent 3.2 Reducing NRW and Upgrading Key Infrastructure (US\$17.7 million). This subcomponent will improve service delivery through the construction or rehabilitation of selected critical infrastructure to increase the reliability of water service delivery, through leak detection and the preparation of performance-based PPPs for NRW reduction. Activities could include: (i) replacement of pipes subject to frequent breakages (US\$3.5m); (ii) increasing raw water storage reservoir capacity to increase the reliability of supply in selected areas (US\$5.0m); (iii) increasing the treatment capacity and rehabilitating selected treated water service reservoirs and associated multistage-pumping systems (US\$1.0m); (iv) expand micro-hydropower generation at the Guma Water Treatment Plant (WTP) and inject 270kW into the national grid to offset electricity consumption in other places (US\$1.3m); (v) study the potential of micro-hydropower generation at charge breaking facilities, of energy efficiency across GVWC's distribution network and of solar power generation on water reservoirs at the existing Guma and Kongo dams and at the open-air Babadorie circular water storage reservoir (US\$0.2m); (vi) preparing four parallel performance-based PPPs for NRW reduction, to create an emulation between the private sector firms for greater and faster impact (US\$2.5m); (vii) implementing a pilot of network zoning and District Metering for NRW reduction in a small area of Freetown (US\$2.5m); (viii) strengthening active leakage management capacity and on-the job training to reduce NRW, which conserve water and reduce emissions (US\$0.7m); and (ix) financing construction supervision of investments to ensure technical soundness and value for money (US\$1.0m).

With these strategic investments - ranging from commercial process improvements and metering to infrastructure upgrades and feasibility studies - **Component 3** will significantly reduce water losses, increase revenue, and improve service reliability, notably in low-income areas, thus making these communities more resilient to climate change–aggravated droughts. Improved water supply infrastructure is more resistant to damage from extreme rainfall or flooding.

#### Component 4: Urban Sanitation Service Delivery Improvement (US\$10 million).

This component will finance works, goods and consultants' services.

<u>Subcomponent 4.1: Improving Sanitation in the Freetown City Council Area (US\$4.8 million).</u> This subcomponent will be implemented by the FCC, in partnership with the Sanitation Directorate of the MWRS. It will: (i) upgrade the existing Kingtom FSTP (US\$1.0m); (ii) build at least a second FSTP in Freetown, using a climate-efficient technology such as biogas digestion combined with biochar generation, which can be used for cooking instead of wood or charcoal, as a way to reduce the pressure on the Western Area forest cover and National Park (US\$2.0m); and (iii) increase access to improved sanitation in critical points of Freetown, through the construction of about 100 improved public toilet facilities with handwashing and adapted menstrual health and hygiene solutions in selected schools, hospitals/health centers and possibly market places, bus stations and parks or recreational areas where people gather in their free time (US\$1.8m).

<u>Subcomponent 4.2: Improving Sanitation in the WARDC Area (US\$3.7 million).</u> This subcomponent will be implemented by WARDC, in partnership with the Sanitation Directorate of the MWRS. It will: (i) build at least one FSTP in the WARDC area, using a climate-efficient technology such as biogas digestion combined with biochar generation, which can be used for cooking instead of wood or charcoal, hence decreasing

pressure on the Western Area Peninsula National Park forest (US\$2.0m); (ii) increase access to improved sanitation in critical points of the WARDC area, through the construction of about 100 improved public toilet facilities with handwashing and adapted menstrual health and hygiene solutions in selected schools, hospitals/health centers, market places, bus stations and public institutions (US\$1.7m).

<u>Subcomponent 4.3: Preparing Nationwide Sanitation Development Campaign (US\$1.5 million).</u> This subcomponent will be implemented by the Sanitation Directorate of the MWRS. It will: (i) develop a City-Wide Inclusive Sanitation (CWIS) plan to structure the sludge management value chain for the safe collection, transport and treatment of fecal sludge collected from households' domestic and public toilet facilities in the Western Area; and (ii) prepare a national behavior change campaign called "Clean Salone" to make Sierra Leone Open-Defecation Free.

These activities will enhance resilience to climate change by improving public health outcomes through reduced open defecation, reduced risk of fecal contamination and pollution of water sources, reduced fugitive GHG emissions from open latrines and/or septic tanks, as well as gains from resource efficiency and re-use of bio-digested by-products. Moreover, less contamination of the surface and groundwater will reduce the potential impact of floods, which will carry less pollutants.

#### Component 5: Project Management (US\$3 million).

This component will finance fiduciary, safeguards, and technical expenditures related to Project implementation by all IAs, including operations costs of the WASHIT, which will be set up within MWRS and will work in close partnership with other IAs. It will also finance consultants and/or technical assistance and limited equipment to support WASHIT, matching MWRS' and IAs' staff with consultants to ensure on-the-job training for knowledge transfer and capacity building. It may also finance E&S framework implementation costs, including costs related to resettlement and M&E.

## Component 6: Contingency Emergency Response Component (US\$0 million).

Following an eligible crisis or emergency, the recipient may request the World Bank to reallocate Project funds to support emergency response and reconstruction consistent with the PDO. This component would draw from uncommitted credit resources under the Project components and will reallocate them to cover emergency response.

## 2.5 List of Subprojects covered by the ESMF

The Project will cover the various categories of procurement, and which are covered by this ESMF as follows:

## Works contracts: the Project will cover:

- 1. Construction and equipment of a building to host the MWRS, NWRMA and SLEWRC
- 2. Rehabilitation and equipment of WASH training centers
- 3. equipment of a Water Quality monitoring laboratory
- 4. Construction of billboards, catchment protective barriers, around the Western Area National Park and effective monitoring systems
- 5. Selected no-regret investments to improve network performance and resilience during the dry season in selected areas of the GVWC water distribution network
- 6. Upgrading of the existing Kingtom Fecal Sludge Treatment Plant (FSTP) infrastructure including the recycling and treatment components
- 7. Design, build and operate new FSTPs

8. Design and build climate resilience sanitation options such as the biogas toilet - infrastructures in public spaces including schools, hospitals, marketplaces, public parks, fish landing sites, touristic and recreational areas

Goods Contracts: the Project will cover:

- 1. Procurement of Smart Domestic Meters.
- 2. Leakage Monitoring Vans & trucks and water Bowsers; and

Consultancy Services: the Project will cover:

- 1. The development of City-Wide Inclusive Sanitation (CWIS) plan for Freetown and WARD C and of a national campaign to make Sierra Leone ODF
- 2. A full safety inspection of the Guma dam
- 3. Feasibility studies, detailed design and preparation of tender documents for priority investments in urban water services delivery improvement for several dams and related treatment, transmission & distribution infrastructure.
- 4. Preparation of a water resources masterplan
- 5. Review and formulation of exciting WASH Policy and regulations including the private sector involvement; and
- 6. Organizational Capacity Assessment and Institutional Development Plan for the sector and construction supervision.

Non-consultancy Services: the Project shall cover:

- 1. Development of a Knowledge Management System.
- 2. An Automated WASH Tariff and Regulatory Reporting System; and
- 3. Updating the national inventory of ground and surface water abstraction points.

## 2.6 Institutional and Implementation Arrangements

The implementing agencies involved in the Project include the Ministry of Water Resources and Sanitation (MWRS), the National Water Resources Management Authority (NWRMA), the Guma Valley Water Company (GVWC), Sierra Leone Water Company (SALWACO), the Freetown City Council (FCC), and the Western Area Rural Development Council (WARDC).



Figure 1: Project Implementation Arrangements

The MWRS will have overall responsibility for Project implementation and coordination among other implementing agencies. It will create a WASH Project Implementation Team (WASHIT), which will oversee Project implementation and coordination. Each IA will designate a focal point for the Project. The MWRS, through WASHIT, will directly implement components 1 and 4.3. It will ensure that capacity building activities benefit all IAs, as well as SALWACO and SLEWRC. NWRMA will be the IA for component 2, GVWC for component 3, FCC for component 4.1 and WARDC for component 4.2. WASHIT will monitor and ensure that implementation is in accordance with Bank requirements on procurement, accounting and financial management, environmental and social aspects, and monitoring and reporting. WASHIT will be composed of competitively selected personnel including a WASHIT Coordinator, specialists in Procurement, Financial Management (FM), Environment, Social, Gender, Planning and M&E, Communication and Institutional Development. MWRS will competitively recruit consultants (firm or individual) to join the WASHIT in the first two years with the double role of supporting Project implementation and of building the Project management capability (staff and systems) of the MWRS, the WASHIT and other IAs.

A Project Steering Committee (PSC) will be established, chaired by the MWRS and composed of high-level representatives of WASH related ministries and all institutions involved in Project implementation. Considering the cross-cutting nature of WASH interventions, the PSC will gather Ministries of Finance, Environment and Climate Change, Lands and Country Planning, Local Government and Community Development, Western Region, Health, Basic and Senior Secondary Education, Gender and Children's Affairs, Planning and Economic Development, and FCC, WARDC, GVWC, SALWACO, NWRMA, and SLEWRC.

# **3.** Environmental and Social Policies, Regulations, and Laws

This section summarizes the regulatory framework relevant/applicable to the Sierra Leone Water Security and Wash Access Improvement Project implementation. The section will compare national regulatory and legal frameworks with the requirements of the World Bank Environment and Social Framework (ESF), identify gaps between these two pieces of instruments, and how propose measures by which these gaps will be addressed.

#### 3.1 World Bank Environmental and Social Framework

The World Bank ESF seeks to support borrowers to develop and implement environmentally and socially sustainable projects as well as build capacity in the assessment and management of environmental and social impacts and risks associated with the implementation and operation of projects. The ESF contains 10 Environmental and Social Standards (ESSs) that borrowers must apply to all projects to be sustainable, non-discriminatory, transparent, participatory, environmentally and socially accountable as well as conform to good international practices. The Bank and the Government have agreed on the role and responsibility of the latter in identifying, mitigating and managing the E&S risks associated with the activities of this project, and this agreement is enshrined in the Environmental and Social Commitment Plan (ESCP), which forms part of the project's legal agreement. Out of the ten ESSs, the relevant ESSs for SL Water Security and WASH Access Improvement Project are presented in Table 3 below.

Environmental and	Key Requirements	Status	Remarks/Comments
Social Standard			
(ESS) Environmental and	ESS1 provides structured processes or procedures for	Relevant	The Project will improve water access, sanitation, and
Social Standard 1	project categorization, assessing and evaluating project		hygiene, with institutional support and capacity
(ESS1): Assessment	environmental and social risks and impacts, as well as		building. It includes hydrological monitoring, urban
and Management of	management of same (mitigation hierarchy). This		water and sanitation improvements. & WASH facilities
Environmental and	standard also sets out Borrower's requirements,		in secondary cities. Risks include worker safety,
Impacts and Risks	including the preparation of various instruments such as		pollution and ecological impacts. Social risks involve
	Environmental and Social Management Frameworks,		community exclusion, labor influx, acquisition of land,
	Environmental and Social Impact Assessment,		and restriction of access to resources. The project
	Environmental and Social Management Plans and		may not support asbestos pipe replacement. If,
	Environmental and Social Commitment Plans as well as		however, works uncover asbestos pipes, there could
	information disclosure. The standard also lays out		be significant potential impact on the health of
	project environmental and social monitoring and		workers and the community, including mismanaging
	reporting requirements. ESS1 establishes the		waste disposal. The project will engage EPA on
	applicability of the other ESSs. It establishes the basis for		asbestos management. Sewage handling and FSTP
	categorizing projects based on the borrower's capacity		operation may cause health risk to workers and the
	to manage and monitor environmental and social		community or may pollute the environment. The
	risks/impacts as well as the implementation of		Project will prepare E&S framework instruments, such
	mitigation measures, socio-political context, scale of the		as ESMF, SEP and RPF to manage and mitigate
	undertaken as well as spatial extent and significance of		subproject specific risks and impacts, as details are
	anticipated impacts and Risks		yet unknown. Site specific risk management plans will
			be prepared prior to the start of any work. All project
			activities will then be screened to characterize the
			nature and scale of the risks. 'High; and 'Substantial'
			risk activities will require the preparation of an
			environmental and social impact assessment (ESIA),
			while moderate risk activities will be managed by an
			environmental and social management plan (ESMP).
			The ESMP may also cover specific risks as determined
			at the scoping or initial assessment stage. For
			example, an Asbestos Management Plan or
			Biodiversity Management Plan will be prepared to

#### Table 3: Relevant World Bank Environmental and Social Standards that apply to: Sierra Leone Water Security and Wash Access Improvement Project

Environmental and	Key Requirements	Status	Remarks/Comments
Social Standard			
			address exposure to asbestos or threat to biodiversity, respectively.
Environmental and Social Standard 2 (ESS2): Labor and Working Conditions	It is to ensure a safe, healthy and conducive working environment for workers and ensure that the environment is free of forced and child labor as well as other forms of intimidation, discrimination and harassment. ESS2 also ensures that workers have channels for grievance resolution, freedom of association and access to collective bargaining rights as prescribed by national law. The standard also seeks to protect vulnerable workers. The Labor and Working Conditions requirements will cover all project workers in this project: direct, community and contract workers as well as primary supply workers.	Relevant	The project will require mobilization of skilled and unskilled primary, contracted, and primary supplier workers. Potential risks and impacts include. Occupational health and safety risk, risks due to workers and local community interaction. The Project implementing entities will be required to establish a comprehensive labor management procedure, including guidance to develop Health, Safety and Environmental (HSE) plan to protect workers' health and safety during construction and operation of water and sanitation facilities, raise grievances, procedures for incident investigation and reporting, emergency preparedness and response. The ESMP will cover occupational health and safety risks and impacts. This instrument may also include an asbestos management plan.
Environmental and Social Standard 3(ESS3): Resource Efficiency and Pollution Prevention and Management	ESS 3 promotes sustainable resource utilization, avoiding and/or minimizing project pollution, generation of hazardous and non-hazardous waste and project-related emissions. This standard enjoins Borrowers to ensure efficient use of energy, water and other raw materials as well as manage air pollution, hazardous and non-hazardous waste, chemicals and hazardous materials (including pesticides) in both degraded and non-degraded areas given their technical and financial feasibility in line with Good International Industry Practice (GIIP).	Relevant	The Project will minimize pollution risk through improved hygiene practices, but handling &treating sewage & operating septic tanks or sewers pose significant hygiene risks. A Waste Management Plan will be prepared to address these. Raw materials for construction, including cement, sand, water, timber and steel rods will be sourced from certified vendors, who will also be prioritized based on efficiency.
Environmental and Social Standard 4 (ESS4): Community Health and Safety	Environmental and Social Standard 4 (ESS4) is titled "Community Health and Safety". The objective of this standard is to anticipate, avoid and/or mitigate adverse project impacts on beneficiary communities as well as safeguard project-affected communities from traffic and	Relevant	Since some civil work will take place on rights of way (ROW) along public roads, school and health facilities, the health and safety of students, school staff, health workers, health service visitors, and vulnerable and disadvantaged households and the public will be prioritized. Vehicular accidents, air pollution, noise,

Environmental and	Key Requirements	Status	Remarks/Comments
Social Standard			
	road safety risks, diseases and hazardous materials associated with project implementation and operation.		trips and falls into excavated sites & trenches, hygiene risk associated with solid waste and sludge treatment, temporary disruption of water distribution systems are potential impacts. All relevant mitigation measures will be taken upfront including robust consultation with key stakeholders surrounding the fecal sludge treatment plant. Children and young people shall be protected from the risk of SEA/SH by contractors' workers. The universal access concept (access for everyone) shall be considered in the provision of safe and clean water access at schools, health facilities, and community level, including individuals with disabilities. Access to sanitation facilities will be inclusive and gender sensitive. Assess and implement measures to manage the security risks of the Project, including the risks of engaging security personnel to safeguard project workers, sites, assets including the Guma catchment and the Western Area National Park. The proposed project aims to enforce policies protecting the Western Area National Park and Guma Valley Water Reserve Dam. This may lead to conflicts between communities and law enforcement personnel. The risk mitigation measures shall be reflected, as needed as part of an ESMP and the RF or Security Risk Assessment and Management Plan.
Environmental and Social Standard (ESS5)- Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	ESS 5 acknowledges that project-related land acquisition and land-use limitations can negatively affect communities and individuals. Physical displacement (relocation, loss of residential land, or loss of shelter) or economic displacement (loss of land, assets, or access to assets leading to loss of revenue sources or other means of subsistence) may result from project-related land acquisition or limits on land usage.	Relevant	A standalone Resettlement Framework (RF) will be prepared to address ESS 5. The RF has established procedures to applying a Process Framework (PF) that will generate an action plan to mitigate the risks and impacts caused by the restrictions on the land and resources use from the designated Western Area National Park. When specific sites to implement Project activities being unknown, the nature and extent of involuntary

Environmental and	Key Requirements	Status	Remarks/Comments
Social Standard			
(ESS)			
			resettlement impacts will be defined and to address
			impacts the project will prepare consult up on and
			disclose Resettlement Plan and/or Livelihood
			Restoration Plan (RP/LRP).
Environmental and		Relevant	Building protective barriers to prevent encroachment
Social Standard-			on protected sensitive ecologies in the threatened
(ESS6) - Biodiversity			watershed would have profound benefits for the
Conservation and			forest ecosystems. However, depending on the type
Sustainable			of barrier, ecological corridors might be impacted, but
Management of			It is not likely that habitat fragmentation or loss of
Living Naturai			ecosystem services will result from a small scale of
Resources			within protoctod forest recerve or community forest
			Ac such the project will prioritize pature based
			solutions (e.g. afforestation soil conservation) to
			protect the Western Area watershed and reduce
			encroachment Transmission routes typically fall
			within designated Right of Ways (RoW) but there is
			the possibility of encroachment on these RoWs. This
			has been addressed in the RF. There is potential for
			temporary disturbance to nature and biodiversity
			from some project activities. These include noise and
			movement generated by excavation, pipe laying,
			metal work etc. ESMF will address consistency with
			ESS6 requirement including an exclusion criterion of
			activities that may cause significant risk on
			biodiversity conservation and apply the mitigation
			hierarchy and specific measures that will constitute a
			section on Biodiversity Management under the
			ESIAs/ESMPs.
Environmental and	It defines cultural heritage elements to include tangible	Relevant	The proposed Project will involve moderate civil
Social Standard	assets such as shrines, artifacts and stones and		works, such as excavations and pipe laying,
(ESS8) - Cultural	intangible assets such as taboos. ESS 8 lays out the		construction and concrete works. No works is
Heritage	Bank's requirements for development within or close to		expected to be carried out in cultural heritage areas.

Environmental and	Key Requirements	Status	Remarks/Comments
Social Standard			
	culturally sensitive zones. This standard also discusses the requirements that should be met prior to the development of projects that are likely to have adverse risks and impacts on cultural heritage sites and resources. The critical requirements include meaningful consultation with affected persons, experts and other interested parties, confidentially/disclosure as well as movement and commercial use of cultural (heritage) resources. The Bank's Environmental and Social Standard on Cultural Heritage seeks to protect cultural heritage resources from adverse project impacts and establish them as an integral part of sustainable development.		Nevertheless, this ESS is conservatively deemed relevant. However, the degree of relevance of this ESS will be further assessed during Project preparation as part of the risk management process. Should the Project affect cultural heritage, appropriate steps will be taken to ensure conservation of cultural heritage during all phases of the Project. The ESMF to be prepared for the Project will also include a chance find procedure and outline the steps to be taken if and when an item/s of cultural significance is discovered.
Environmental and Social Standard (ESS10) - Stakeholder Engagement and Information Disclosure	ESS10 establishes a systematic approach to stakeholder engagement while ensuring that appropriate information on project risks and impacts is provided to stakeholders in a timely, comprehensive, accessible, and appropriate manner. The standard also ensures inclusive and effective engagement of project-affected parties throughout the project cycle and provides avenues for assessing stakeholder interest and incorporating their views into project design and monitoring of projects.	Relevant	The Project's stakeholder engagement design must focus on inclusive participation and information disclosure using appropriate language and media. Key stakeholders include MWRS, NWRMA, GVWC, SALWACO, Freetown City Council (FCC), and Western Area Rural District Council (WARDC). Beneficiaries include staff in implementing agency, communities with access to clean water, schools, health facilities, students, water service providers, maintenance workers, FSTP users, CSO/NGOs, and those adversely affected by the project. A Stakeholder Engagement Plan (SEP) will be prepared and implemented, proportional to the project's nature, scale, risks, and impacts. The SEP will be disclosed before project appraisal, ensuring consultations are timely, relevant, understandable, and accessible. A documented record of stakeholder engagement will be maintained & publicly disclosed. A project-wide Grievance Redress Mechanism (GRM) will address concerns, including a confidential channel for GBV incidents

#### 3.2 Project Categorization under the World Bank ESF

Under the World Bank ESF, the World Bank classifies projects into four (4) categories: High, Substantial, Moderate and Low Risk largely based on the scale of the project, level of impact, environmental and social sensitivities and risks associated with the project, in country socio-political conditions as well as the capacity of the borrower to manage the associated impacts and risks. Both the environmental and social risk rating of the Sierra Leone Water Security and WASH Access Improvement Project is Substantial.

**Summary of Environmental and Social Risks and Impacts:** Potential risks emanate from project activities in water infrastructure, that could lead to occupational health and safety risks, pollution, and disease transmission from sewage handling, exacerbated by the weak institutional capacity to manage these risks. MWRS and partners will establish E&S risk management as per the ESF. Proposed activities do not involve dam construction, but there will be technical and Feasibility studies, detailed designs, and preparation of tender documents for some dams, treatment plants, and related transmission and distribution. The project team has initiated discussion with the Bank's Dam Safety Team on the Dam Safety Guidance Notes, and this engagement will continue as required. Since the project will involve activities in a protected area, the project approval process has been escalated to the Regional Operation Committee (ROC) as per policy. There are risks associated with sewage handling, civil work, biodiversity impact, and conflicts over barriers in water catchment areas. Construction may cause noise, air, and water pollution, and project workers as well as community health and safety risks (including gender-based violence). Some of the Project Subcomponents including the construction of a FSTP in Freetown may require land acquisition and physical and/or economic displacement effects. There shall be no forced displacement resulting from this project.

Institutions involved have some Environmental and Social risk management experience from previous projects but require systematic ESF institutional capacity assessment, including gender aspects and proportionate capacity building plans (human resource, soft skills training, and logistics). EPASL, the national environmental conservation agency, has a rigorous risk assessment process and requirement for all projects with an environmental and social footprint. EPASL, like the Bank, prioritizes Stakeholder consultation and grievance redress both during project preparation and implementation. Considering the proposed project component and activities, potential social risks include social exclusion, involuntary resettlement, and ensuring clean water access in poor neighborhoods within Freetown City Council and Rural Western Area. Fecal Sludge Treatment Facility construction may require additional land acquisition. Disadvantaged groups must be included in consultations. Civil work could induce moderate labor influx. The Project may cause temporary and permanent land acquisition and displacement due to civil works and law enforcement in protected areas such as the Western Area Rural National Park. MWRS's weak Environmental and Social capacity necessitates strategic capacity building and technical assistance for design and feasibility studies.

The risk of Sexual Exploitation, Abuse, and Sexual Harassment (SEA/SH) is substantial, with 62% of women in Sierra Leone experiencing violence. The Project will support women's health, hygiene, and sanitation, contributing to gender equality. An SEA/SH prevention and response action plan will be prepared, including recruiting a service provider and GBV/SEA/SH expert. The Project will leverage existing SEA/SH risk action plans and ensure a responsive Grievance Redress Mechanism (GRM), worker training, and an Accountability and Response Framework.

Stakeholder engagement will focus on inclusive participation and information disclosure using appropriate language and media. Key stakeholders include MWRS, NWRMA, GVWC, SALWACO, Freetown City Council,

and Western Area Rural Council. Beneficiaries include communities with access to clean water, schools, health facilities, students, water service providers, maintenance workers, FSTP users, CSO/NGOs, and those adversely affected by the project. An inclusive Stakeholder Engagement Plan (SEP) will be prepared and implemented, proportional to the project's nature, scale, risks, and impacts. The SEP will be disclosed before project appraisal, ensuring consultations are timely, relevant, understandable, and accessible. A documented record of stakeholder engagement at different stages of the project cycle will be maintained and publicly disclosed. A project-wide GRM will address concerns, including a confidential channel for SEA/SH issues. Local actors and liaison officers may be designated to coordinate the SEP implementation.

When there is adequate information about the Project locations, scope of investment and the corresponding risks, the Project E&S risks will be reassessed based on the scope of Project activities and determine if it needs revision to upgrade the E&S risk rating and additional E&S instruments as needed.

#### 3.3 Relevant World Bank Group Guidelines

The guidelines relevant to the project, and that will be summarized here are:

- The World Bank Environment and Social Framework (ESF), 2017
- World Bank Group World Bank Group Environmental, Health and Safety Guideline (EHSG), 2007 (General Guidelines)
- ESF Guidance notes for Borrowers
- ESF Good Practice for assessing and Managing the Risks of Adverse Impacts on Communities from Project-Related Labor Influx
- ESF Good Practice for Dam Safety
- Good Practice Note Addressing Sexual Exploitation and Abuse and Sexual Harassment in the Financing of Investment Projects involving Major Civil Works
- Good Practice Note for Non-discrimination and Disability
- Good Practice Note: Non-Discrimination Sexual Orientation and Gender Identity (SOGI)
- Good Practice Note for Gender
- Good Practice Note: Assessing and Managing the Risks and Impacts of the Use of Security Personnel
- Interim Guidance Notes: Managing the Risks of Projects Involving Protected Areas, 2025

The principal guiding instrument is the World Bank ESF, which sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The World Bank Group, Environmental Health and Safety (EHS), General, Water and Sanitation (WS) and waste management facilities Guidelines (December 2007) also apply to the Project. The EHS Guidelines are technical reference documents with general and industry specific (in this case, Water and Sanitation and waste management facilities) examples of Good International Industry Practice. The WS EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to the sector. The guidelines can be found at: https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The General EHS guidelines will be sufficient

guidance for general (i.e. non-WS specific) construction work such as building construction and rehabilitation.

#### 3.4 National Environmental and Social Policy Framework

The national policies identified as relevant or applicable to the project are presented in Table 4 and these include:

#### Table 4 : Relevant National Polices

<ul> <li>National Environmental Policy (NEP) 2013         The National Environmental Policy (NEP) enacted in 2013 is the key policy instrument for harmonizing the development between human and natural aspects and ensuring that the development is sustainable and does not have any environmentally negative effects. The Policy seeks to achieve sustainable development through the implementation of sound environmental management principles, and it also promotes efforts which will prevent or eliminate damage to the environment and biosphere while stimulating a quality environment that can adequately provide for the health and well-being of the citizenry. The NEP takes into consideration sectoral goals and policies aimed at enhancing sustainability in environmental management. Sectorial policies highlighted within the NEP include 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; Coastal and Marine Resources; 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.     </li> <li>It is applicable to achieve sustainable development through the implementation of sound environmental management principles in project design and implementation.</li> <li>The National Water, Sanitation Policy, 2010</li> <li>The National Water, Sanitation, and Hygiene (WASH) Policy provides a comprehensive framework for promoting optimal, sustainable, and fair development and use of water resources in Sierra Leone. The core strategic objectives are:     Water Resources Management including equal access and effective use Rural and Urban Water Supply and Sewage systems that improve sanitation coverage. promotes participation, capacity, and accountability     Impr</li></ul>
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A National Biodiversity Strategy and Action Plan 2017–2026
5 I National Diouversity Strategy and Action Plan 2017–2020
The revised NBSAD (2017–2026) for Sierra Leone has been developed based on national needs and
niorities for the implementation of the United Nations Convention on Biological Diversity (CBD)
objectives and Aichi Targets
Key lessons learned from the development of the NRSAP 2004–2010 were fed into the review and
development of the NBSAP 2017–2026. Additional priority thematic areas were identified and addressed
such as intellectual property rights and climate change collaboration between stakeholders, the problem
of overlapping mandates, and conflict of interest among government agencies
The updated NBSAP has five strategic objectives consistent with the five strategic goals of the CRD
followed by a total of 23 strategic outputs.
4 National Disaster Risk Management Policy. 2018

	The policy vision is to have "A safer and resilient nation in which communities, the economy and the
	environment are better protected from the negative impacts of nazards, through appropriate
	Comprehensive disaster fisk management.
	sterra Leone is increasingly vulnerable to natural and man-made nazards. The DRM policy aims to
	reduction into development planning and costor policies, delivery of required assistance, and addressing
	of the concerning and sector policies, derivery of required assistance, and addressing
	of the consequences of disasters declared in Sierra Leone under the appropriate national legislation. The
	Drivi policy includes clear foles and responsibilities for flational and local governments and development
	offective disaster management systems
г.	National Climate Change Delicy (NCCD) 2021
5	The National and climate change Policy guides Sierra Leone's offerts to address climate change. Its five
	main goals are to: i) integrate climate change into national planning; ii) strengthen institutional and
	governance frameworks for climate change into hational planning, it) strengthen institutional and
	governance frameworks for climate change adaptation and low carbon growth, in reduce greenhouse
	capacity of vulnerable communities
6	The Right to Access Information Act. 2013
0	Being an Act to provide for the disclosure of information held by public authorities or by people providing
	services for them and to provide for other related matters. This implies that the PILL is mandated by this
	Act to disclose all the relevant information about the project to affected and interested stakeholders and
	that failure to supply information to stakeholders is tantamount to an offense which is liable on
	conviction to a fine not exceeding ten million Leones in the case of an individual and one hundred million
	Leones in the case of a body corporate or to a term of imprisonment not exceeding six months or to both
	the fine and imprisonment.
7	Cultural Heritage
	The National Environmental Policy (2013) provides for the collection of relevant data on biological
	diversity and cultural heritage. It seeks to promote socioeconomic and cultural development through the
	preservation of biological diversity for a sustainable utilization of natural resources. There are references
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	Provide social infrastructure
	Supply promptly serviced or un-serviced lands at prices, which can secure socially and
	economically acceptable natterns of economic development
	Provide for national defence national security national health and conflict resolution and
	<ul> <li>Protect areas of historical cultural or ecological interest</li> </ul>
	<ul> <li>Land administration in Sierra Leone is governed by a dual system of law dispersed in about</li> </ul>
	twenty statutes and regulations.
	• In the Western Area of Sierra Leone, land tenure is governed by Property Statutes. The land is
	either State (publicly) owned or privately owned. The right of the state to public land is
	inalienable and indefeasible. Rights of occupation over public land may be granted under
	warrant. The state has the power, conferred by the Unoccupied Lands Act, Cap 117, to take
	possession of unoccupied land
	• In the provinces, customary Law co-exists with the statute. The recognition of the force of
	customary law in the provinces is established by section 76 (1) of the Courts Act 1965.
	Through customary law, ownership of land is vested in the chiefdoms and communities; and can never be
	owned freehold. Land always belongs to the communities under the different forms of tenure under
	customary law. This principle is established by the Chiefdom Councils Act as well as by Section 28 (d) of
	the Local Government Act 2004. As the current project will engage in the reversion of some land use
	from urban/residential to natural and wildlife, the stipulations of this policy will be applicable and shall
	have to be considered.
9	National Resettlement Policy, 2021
	Provides a framework for identifying, engaging, and compensating Project Affected Persons. The policy
	regulates activities undertaken by government interventions that may lead to physical and/or economic
	displacement and require compensation.
10	National Policy on Gender Mainstreaming, 2000
	The overall goal of the policy is to mainstream gender concerns in the national development process to
	improve the social, legal, political, economic, and cultural condition of the population, particularly
	marginalized groups. Its aim is to provide for policy makers and other actors in the development field,
	reference guidelines for identifying and addressing gender concerns, particularly when taking policy
	decisions to redress imbalances which arise from existing inequalities; to promote access to and control
	over economically significant resources and benefits, or to ensure the participation of both women and
	men in all stages of development.

## 3.5 Relevant Legal and Regulatory Framework

The relevant environmental laws and regulations to guide the project the project cycle is presented in Table 5 and these include

#### Table 5: Relevant Legal Framework Applicable to the Proposed Project

No.	Legal and Regulatory Framework
1.	Constitution of Sierra Leone
	The Constitution states that the state shall, among other things, within the context of the ideals and
	objectives for which provisions are made in the Constitution, harness all the natural resources of the
	nation to promote national prosperity, manage and control the national economy well, and be
	governed through the Executive, Legislative, and Judicial branches of Government.
	Section 106(1) of the Constitution of Sierra Leone gives Parliament the power to make laws which
	shall be exercised by bills passed by Parliament and signed by the President. Subject to certain
	provisions, a bill shall not become law unless it has been duly passed and signed in accordance with
	the Constitution. An act signed by the President shall come into operation on the date of its

No.	Legal and Regulatory Framework
	publication in the Gazette or such other date as may be prescribed therein or in any other
	enactment.
2.	<ul> <li>Environment Protection Agency Act, 2022</li> <li>The Environmental Protection Agency (EPA) Act 2008 amended in 2022 is the government of Sierra Leone's overarching legislation that deals with the protection of the environment. The Environment Protection Agency was established with a Board of Directors set up as its governing body. Subject to this Act, the control and supervision of the Agency is the responsibility of the Board, whose administrative functions as stipulated by the EPA, 2008. The functions include the following, but not limited to: <ul> <li>Ensure compliance with prescribed environmental impact assessment proce-dures in the planning and execution of development projects</li> <li>Coordinating and monitoring the implementation of national environmental policies relating to Sierra Leone.</li> <li>Providing policy guidance and advice to ensure the efficient implementation of the functions of the Agency so as to enhance its overall performance.</li> <li>Facilitating co-operation and collaboration among Government Ministries, local authorities</li> </ul></li></ul>
	<ul> <li>and other governmental agencies, in all areas relating to environmental protection.</li> <li>Coordinating environmentally related activities as well as serving as the focal point of national and international environmental matters, relating to Sierra Leone.</li> <li>The act is applicable to all subcomponents under the Sierra Leone Water Security and WASH Access Improvement Project. There are EPA requirements for licensing. The project is expected to satisfy requirements of the Environment Protection Agency Sierra Leone (EPA-SL) for the issuance of an EIA license.</li> </ul>
3.	<ul> <li>The Sierra Leone Water Company Act, 2017</li> <li>The act establishes provisions for the continuance in existence and effective management of the Sierra Leone Water Company (SLWCO) to provide more efficient and effective management of community and rural water supply systems in specified areas and to provide for the facilitation of water-related sanitation and water delivery in Sierra Leone.</li> <li>Some of the responsibilities of the company include the following:</li> <li>Provide technical support to District Councils in the design, planning, construction, backup services, and community management of projects related to safe water supply and related sanitation services.</li> <li>Assist and coordinate with NGOs, the private sector, and other relevant providers in the development and provision of water supply and related sanitation services in the country.</li> </ul>
4.	The Guma Valley Water Company Act, 2017 The act has provisions for the Guma Valley Water Company (GVWC) to continue to exist, for the sustainable supply of water for public and private use. The objective for which the company is established is to produce, distribute, and conserve water within the limits of supply and other areas as may be determined by the commission. The company, among other things, exercises responsibility for the control, development, and management of Guma works and water supply services within the limits of supply, which is mainly in Freetown; construct, reconstruct, rehabilitate, repair, and maintain waterworks, buildings, and other infrastructure of the company; and lay main and service pipes in any street or other public place within the limits of supply. Access to fresh water in Freetown is mostly challenging, especially for poor households. However, with the provisions of the act and its full execution, there is a likelihood that Guma would be able to make potable water accessible to all persons/households. This act ensures that the GVWC is run more efficiently by clearly defining its functions and the management structure. Most communities in Freetown now have community pumps that provide potable water for poor households within proximity.

No.	Legal and Regulatory Framework
5.	The Forestry Act1988
	Section 18 of the Forestry Act stipulates that: The Chiefdom Authorities or Local Council of any
	chiefdom may conclude an agreement with the Chief Conservator of forests 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.
6.	Wildlife Conservation Act 1972, Amendment in 2022
	The Wildlife Conservation Act of 1972 was amended in 2022 to include the prohibition of hunting of
	elephants in all forests. The Wildlife Regulations of 12022 however makes provision for the
	acquisition of licences or permits for hunting in such designated areas and for other purposes as may
	be prescribed. It is necessary to conserve species, genes, habitats, and ecosystems; ensure the wise
	use of biological resources; and ensure access to benefit sharing of genetic resources.
7.	National Water Resources Management Agency Act No. 5 of 2017
	The act is aimed at establishing the National Water Resources Management Agency which shall be
	responsible to ensure that the water resources of the country are controlled in a sustainable manner
	considering. The act emphasizes some functions of the agency as follows:
	<ul> <li>adopting natural river basin and aquifer boundaries as the basic units of management of water</li> </ul>
	resources.
	• protecting the water resources for sustainability of the resource and protection of aquatic systems
	and recognizing the polluter-pays principle
	<ul> <li>providing for existing customary uses of water and avoidance of significant harm to other users</li> </ul>
	<ul> <li>promoting the efficient and beneficial use of water resources in the public interest</li> </ul>
	• promoting community participation and gender equity in the allocation of water resources
	• promoting conservation and recognizing the economic value of water resources;
	<ul> <li>reducing and preventing pollution and degradation of water resources and</li> <li>mosting international obligations in protecting and managing transboundary water bodies</li> </ul>
0	International obligations in protecting and managing transboundary water bodies.
0.	This Act astablishes the National Protected Area Authority, which shall have perpetual succession
	and canable of acquiring holding, and disposing of any property. The Act provide for the
	establishment of Trust Fund to promote hindiversity conservation, wildlife management, research to
	provide for the sale of ecosystem services in the National Protected Areas and to provide for other
	related matters. The Act details the organization and following duties of the authority:
	Act 12.2 states that the Authority shall have responsibility to develop policies and strategies
	for adapting the National Protected Area system to affect climate change. The Authority is
	also in charge of formulating and implementing awareness activities for forest management
	and sustainable land use.
	<ul> <li>Act 19 establishes a fund to be called the Conservative Trust Fund.</li> </ul>
	• Act 22 states that the fund shall notably be financed by revenue generated from carbon
	trading.
9.	Public Health Act, 2004
	This Act amends the Public Health Act (Ordinance) of 1960 by the repeal and replacement of the
	fines contained in the Act.
10.	Persons with Disability Act, 2011
	According to Section 24(2) of this act, public buildings/facilities that are accessed by the public are to
	be disability friendly, while Section 14 (2) enjoins the government to adapt existing structures to
	enhance access for persons with disability. In Sections 20 and 21 of the Act, it is an offence to deny a
	person contracts and employment opportunities based on disability.
No.	Legal and Regulatory Framework
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11.	Child Right Act, 2007
	Part III of the Act, the Employment of Children stipulates that the minimum age at which free education ends, when children can engage in full time employment or apprenticeship is at fifteen (15 years) though the Act allows children to engage in light work (non-strenuous and non-hazardous work) at the age of thirteen (13) but only persons eighteen (18) years and above can engage in hazardous work such as civil works. The Act which prohibits children from working at night also set conditions for apprenticeship.
12	The Sierra Leone Local Content Agency Act. 2016
	The act establishes the Sierra Leone Local Content Agency to provide for the development of Sierra Leone local content to promote the ownership and control of productive sectors in the economy by citizens of Sierra Leone. The primary objective of the agency is to promote Sierra Leone local content development by effectively and efficiently managing the administration and regulation of Sierra Leone local content development. Some requirements stated in the act include those mandating the use of a minimum percentage of Sierra Leonean labour in professional cadres in all contracts awarded above a threshold value as stipulated by the minister and assisting local contractors and Sierra Leonean companies to develop their capabilities to attain the goal of developing Sierra Leone local content in the sectors covered by this act.
13.	Local Government Act, 2004 This act deals with the establishment and operation of LCs around the country to enable meaningful decentralization and devolution of government functions. It stipulates that an LC shall be responsible generally for promoting the development of the locality and the welfare of the people in the locality with the resources at its disposal and with such resources and capacity as it can mobilize from the central government and its agencies, national and international organizations, and the private sector. The LC should initiate and maintain programs for the development of basic infrastructure and provide works and services in the locality. An LC shall cause to be prepared a development plan which shall guide the development of the locality. The schedules to the Local Government Act outline the activities of various MDAs that have been devolved to LCs.
14.	<b>Local Government Amendment Act, 2017</b> The Act amends the Local Government Act, 2004, to provide for the addition of new Districts created under the provinces (Administrative Division) Order, 2017 and other related matters.
15.	Monument and Relics Act, 1962 The Monuments and Relics Commission was established in 1948 following the passing by Parliament of the Monuments and Relics Ordinance in 1946. The mandate of the commission is to provide for "the preservation of ancient, historical and natural monuments, relics and other objects of archaeological, ethnographical, historical or other scientific interest." In 1962, this ordinance was upgraded into an act. The commission has the responsibility of ensuring the preservation, protection, and promotion of Sierra Leone's cultural heritage assets. Several restrictions may be placed on projects because of cultural considerations. ESS8 recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present, and future. Cultural heritage, in its many manifestations, is important as a source of valuable scientific and historical information, as an economic and social asset for development, and as an integral part of people's cultural identity and practice. Chance finds may occur during construction. A chance find is any unanticipated discovery or recognition of cultural heritage. If they occur, they will be reported to the Monuments and Relics Commission.
16.	Sierra Leone Roads Safety Authority (Amendment) Act 2010 The Sierra Leone Road Authority (Amendment) Act, 2010 was aimed to develop a national policy on the maintenance, rehabilitation, improvement and management of the core road network and to provide for other related activities. This Act was also amended again in 2016, to highlight the concept of safety in the exercise of the functions of Road Safety Corps as well growth and

No.	Legal and Regulatory Framework
	development of business in Sierra Leone. Subject to these acts, 2010 Road Safety Amendment Act
	includes the following:
	Propose vehicle weight and dimension limits for the protection of roads, bridges, ferries,
	and ensure their enforcement in collaboration with relevant bodies
	• The Authority shall adopt suitable policies in respect of the condition of service of staff,
	which shall be compatible with the standards of practice.
	• The financial year of the Authority shall be the same as the financial year of the Government
	<ul> <li>The Authority shall be financed by the funds consisting of monies appropriated by</li> </ul>
	Parliament for the purpose of the Authority.
	Traffic problems are caused by restrictions on road access because of construction activities. This
	may be the case for the urban upgrading project. The act is applicable for the maintenance of road
	safety during construction works.
17.	Customary Land Rights Act 2022
	Land administration in Sierra Leone is governed by a dual system of law, dispersed in about twenty
	statutes and regulations. In the Western Area of Sierra Leone, land tenure is governed by Property
	Statutes. The land is either State (publicly) owned or privately owned. The right of the state to public
	land is inalienable and indefeasible. Rights of occupation over public land may be granted under
	warrant. The state has the power, conferred by the Unoccupied Lands Act, Cap 117, to take
	possession of unoccupied land. In the provinces, customary law co-exists with statutes. The
	recognition of the force of customary law in the provinces is established by section 76 (1) of the
	Courts Act 1965. Through customary law, ownership of land is vested in the chiefdoms and
	communities; and can never be owned freehold. Land always belongs to the communities under the
	different forms of tenure under customary law. This principle is established by the Chiefdom Councils
10	Act as well as by Section 28 (d) of the Local Government Act 2004.
18.	Prevention and Control of HIV/AIDS Act, 2007
	AIDS for the treatment counselling support and care of persons infected with affected by or at rick
	of HIV and AIDS infection. It urges the government to assume responsibility for educating and
	providing information to all citizens on HIV and AIDS safe practices and procedures testing
	screening and access to healthcare facilities within the country. It prescribes safe practices and
	procedures to enhance the prevention of transmission and prohibits compulsory testing. The law
	also prohibits discriminatory policies in the workplace and schools, restriction of movement based on
	HIV status, and denial of burial rites.
	The act is applicable for the prevention of probable labour influx induced incidence of HIV and AIDS
	infection and other infectious diseases among project Site Workers (skilled/unskilled) the community
	members.
19.	Persons with Disability Act, 2011
	Sierra Leone Persons with Disability Act No 3, 2011 seeks to prohibit discrimination against persons
	with disabilities, to achieve equalization of opportunities, establish the National Commission for
	Persons with Disabilities and to provide for other related matters. In Sierra Leone, three are about
	450,000 disabled people, although this number maybe an under representation. Common disability
	issues include blindness, deafness, war wounded including amputees. Since persons with disabilities
	in Sierra Leone continue to face rampant discrimination, the Act No3, 2011 provides some aspects of
	plans to minimize the situation:
	<ul> <li>Visibility of disability in the Medium-Term National Development Plan 2019-2023.</li> </ul>
	<ul> <li>Recruitment of persons with disability to serve in various sectors in Sierra Leone.</li> </ul>
	Internvolvement of UNDP, WHO and other non-traditional partners in addressing issues
	with disability.
	<ul> <li>Oriences and penalties for crime against disables.</li> <li>Einancial provisions, relief and incentives.</li> </ul>
1	<ul> <li>with disability.</li> <li>Offences and penalties for crime against disables.</li> <li>Financial provisions, relief and incentives.</li> </ul>

No.		Legal and Regulatory Framework
	-	The act is applicable to ensure all projects under RUSLP are user friendly to people with
		disabilities.

# 3.6 Gaps between World Bank ESF and National Legislation

There are some gaps between existing laws of the country and WB ESSs. Gaps between Government of Siera Leone laws including policies related to environmental and social risk management and suggested gap filling measures are given in Table 6.

Table 6: Gaps betwee	n Government of Sierr	a Leone laws and	World Bank ESSs
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Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
	ESS 1: Assessment and Man	agement of Environmental and Socia	I Risks and Impacts	
<ul> <li>Identify, evaluate and</li> </ul>	The standard provides •	The Environment Protection	Even though the	Projects in Sierra Leone funded by
manage the environment	guidance on assessing the	Agency Act and its amendments	regulation seeks to	the World Bank generally
and social risks and impacts	Project's potential	(2022, 2010, 2008) provide for	anticipate and	implement additional safeguards
of the project in a manner	environmental and social risks	the effective protection of the	mitigate/avoid risks and	and procedures to ensure
consistent with the ESSs.	and impacts and addressing	environment and for other	impacts, the Sierra	compliance with ESS1:
• To adopt a mitigation	potential impacts through	related matters. The Act alludes	Leone EPA Act lacks	• A GRM will be established,
hierarchy approach to:	planning and mitigation	to ambient air, water and soil	comprehensive social	run, tracked and monitored
<ul> <li>Anticipate and avoid risks</li> </ul>	hierarchy approach.	quality, the pollution of air,	risk management,	by the WASHIT. WASHIT will
and impacts.		water, land and other forms of	structured and	be strengthened to manage
<ul> <li>Where avoidance is not</li> </ul>		environmental pollution	continuous stakeholder	E&S risks proportionate to the
possible, minimize or		including the discharge of waste	engagement, grievance	nature and severity of the
reduce risks and impacts		and the control of chemicals,	mechanisms, adaptive	risks. The E&S competencies
to acceptable levels.		toxic, and hazardous	management practices,	at WASHIT will include a social
<ul> <li>Once risks and impacts</li> </ul>		substances.	and tools like the	specialist and a Gender
nave been minimized or	•	The Act requires certain	Environmental and	Specialist.
reduced, mitigate; and		categories of operations to	Social Commitment	<ul> <li>Assistance/compensation will</li> </ul>
<ul> <li>Where significant residual</li> <li>impacts</li> </ul>		carry out Environmental and	Fian, which are core to	be provided for the parties
impacts remain,		Social impact assessment	ESSIS approach to	through the City Council
them where technically		studies in order to obtain an EIA	saleguaruing	The City Council and other
and financially fossible		license. Such studies cover but	continuinties and the	implementing agencies will
and infancially leasible.		are not limited to identifying	environment.	he fully involved in the project
		imports of the project		preparatory stage through
		mitigation measures and the		consultations for them to
		ninigation of anyironmontal		become abreast with project
		and social management and		components and the roles
		monitoring plans Community		they will play during
		consultations and grievance		implementation.
		redress mechanisms are part of		• The capacities of the City
		the process. The required		Council's staff on World Bank
		management plan is the Public		ESF will also be built at the
		Consultation and Disclosure		early stage of project

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
		Plan.		implementation to enable
		<ul> <li>The Act advocates for the</li> </ul>		them to collaborate
		freedom of access to		effectively in addressing this
		information, record keeping,		gap.
		education and public		<ul> <li>Supervision and monitoring</li> </ul>
		awareness, and highlights		of implementation of the
		juridical proceedings and		ESMP and the hierarchy of
		miscellaneous provisions.		measures figuring in ESS1
				should be ensured,
	ES	S2: Labor and Working Conditions		
<ul> <li>To promote safety and</li> </ul>	ESS2 promotes fair treatment,	The Employment and Employed	The Sierra Leone	For World Bank-funded projects,
health at work, fair	non-discrimination, and	Act (2023) provides for the	Employment Act of	supplementary measures may be
treatment, non-	provision of equal	consolidation and improvement	2023 likely addresses	necessary to align with ESS2
discrimination, and equal	opportunities for workers	of the law relating to labor and	various elements to	requirements fully:
opportunity of project	engaged on projects it	employment, and for all the	bring it closer to the WB	<ul> <li>The project will adopt and</li> </ul>
workers including vulnerable	supports. It strongly	matters necessary to promote	ESS2 on labor and	enhance a Sierra Leone Water
workers such as women,	encourages protection of all	equal opportunity and eliminate	working conditions.	Security and Wash Access
persons with disabilities,	project workers, including	discrimination in employment	However, it may still	Improvement Project GRM
children	vulnerable groups such as	and occupation. The Act covers	have areas of partial or	dedicated to labor, which
<ul> <li>To prevent the use of all</li> </ul>	women, persons with	the following matters: business;	total non-compliance,	addresses concerns promptly.
forms of forced labor and	disabilities, children (of	contract of employment or	including enhanced	<ul> <li>An Occupational health and</li> </ul>
child labor.	working age) and migrant	service; earnings;	grievance systems,	Safety plan and a Labor
<ul> <li>To support the principles of</li> </ul>	workers, contracted workers,	discrimination; employer; equal	comprehensive health	Management Plan tackling
freedom of association and	and primary supply workers, as	remuneration; national	and safety standards,	working conditions,
collective bargaining of	appropriate. It provides certain	minimum wage; strike; trade	reliable enforcement of	occupational health and
project workers in a manner	requirements that the project	dispute; violence and	anti-discrimination	safety, child labor, etc., have
consistent with national law.	must meet in terms of working	harassment; wage.	policies, and	been developed as part of this
• To provide project workers	conditions, protection of the	The Constitution of Sierra Leone	guaranteed	report to guide project
with accessible means to	work force (especially the	(1991) Act No. 6 guarantees fair	employment contracts.	implementers in managing
raise workplace concerns.	prevention of all forms of	working conditions, equal pay	The Factories Act (1974)	labor-related issues in
• OHS Hazard identification	forced and child labor), and	for equal work, and fair	does not specifically	addition to Emergency
and right of employees to	provision of a grievance	compensation. The Factories	cover activities under	procedures.
remove themselves from	mechanism that addresses	Act, 1974, which applies to	this project, and is not	• A standalone Labor
such workplaces without	concerns on the project	factories, defined in the Act as	enforced outside of	Management Procedures
being punished.	promptly and uses a	any premises in which or within	industries.	(LMP), including workers

Government of Sierra Leone RegulationGRM, will be prepare consulted upon, disclosed implemented by the Project meet the requirements of ESS.Under ESS 2, workplace processes will be put in place for project workers to report work situations that theyThe close or curtilage or precincts of which persons are employed in manual labor.GRM, will be prepare consulted upon, disclosed implemented by the Project meet the requirements of ESS.	Scope/Objective
Regulationtransparent process that provides timely feedback to those concerned.the close or curtilage or precincts of which persons are employed in manual labor.GRM, will be prepare consulted upon, disclosed implemented by the Project meet the requirements of ESS.Under ESS 2, workplace processes will be put in place for project workers to report work situations that theyWorkers will be sensitized the LMP and their rights remove themselves from	
transparent process that provides timely feedback to those concerned.the close or curtilage or precincts of which persons are employed in manual labor.GRM, will be prepare consulted upon, disclosed implemented by the Project meet the requirements of ESS.Under ESS 2, workplace processes will be put in place for project workers to report work situations that theywhe close or curtilage or precincts of which persons are employed in manual labor.GRM, will be prepare consulted upon, disclosed implemented by the Project meet the requirements of ESS.	
provides timely feedback to those concerned.precincts of which persons are employed in manual labor.consulted upon, disclosed implemented by the Project meet the requirements of ESS.Under ESS 2, workplace processes will be put in place for project workers to report work situations that they• Workers will be sensitized the LMP and their rights remove themselves fr	
those concerned.employed in manual labor.implemented by the Project meet the requirements of ESS.Under ESS 2, workplace processes will be put in place for project workers to report work situations that they• Workers will be sensitized the LMP and their rights remove themselves fr	
Under ESS 2, workplaceESS.processes will be put in place• Workers will be sensitizedfor project workers to report• Workers will be sensitizedwork situations that they• remove themselves fr	
onder LSS 2, workplaceprocesses will be put in placefor project workers to reportwork situations that theyremove themselves fr	
for project workers to report     the LMP and their rights       work situations that they     remove themselves fit	
work situations that they remove themselves fi	
believe are not safe or healthy, unsafe workplaces, and	
and to remove themselves fact that they will not	
from a work situation which retaliated against if they de	
they have reasonable in line with the LMP/ES	
justification to believe presents provisions.	
an imminent danger to their	
life or health. Project workers	
who remove themselves from	
such situations will not be	
until necessary remedial action	
to correct the situation has	
been taken. Project workers	
will not be retaliated against or	
otherwise subject to reprisal or	
negative action for such	
reporting or removal.	
ESS3 Resource Efficiency and Pollution Prevention and Management	
To achieve the sustainable use The ESS3 provides In addition to the While Sierra Leone's Relevant WB EHS guidelines	o achieve the sustainable use
of resources, including requirements for projects to Environmental Protection Act environmental policies be adopted to achieve sustaina	of resources, including
implementing measures that achieve the sustainable use of and its amendments, the offer a foundation for use of resources and red	mplementing measures that
avoid or reduce pollution resources, including energy, National Environmental Policy addressing resource pollution from the construct	void or reduce pollution
resulting from project activities water, and raw materials, as and its amendment aim to efficiency and pollution, operation, and decommission	esuiting from project activities
that avoid or reduce pollution use reduce waste and prevent requirements include ESMPs and contractors will	
resulting from project environmental degradation the lack of rigorous required to adopt relev	

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
	activities. The standard places specific consideration on hazardous wastes or materials and air emissions (climate pollutants) given that the current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of present and future lives.	through policies to control pollution from industrial, agricultural and urban sources. The National Water Resources Management Agency Act provides a framework for the sustainable use and conservation of water resources, with a focus on protecting water quality and preventing pollution. The act highlights regulation of water withdrawals, waste discharge, and conservation practices. The National Policy Roadmap on Integrated Waste Management Act incorporates management of municipal solid waste, hazardous healthcare waste, industrial waste, liquid waste and waste electrical and electronic equipment. The National Renewable Energy Policy encourages the development of renewable energy, supports pollution reduction and promotes the efficient use of resources.	resource efficiency targets across sectors; limited enforcement of pollution control standards with sector- specific guidelines, minimal frameworks for hazardous waste and materials management, and weak monitoring, reporting and enforcement mechanisms for continuous improvement.	provisions in their site-specific Environmental Management Plans.
	ES	S4 Community Health and Safety		
<ul> <li>To anticipate and avoid adverse impacts on the health and safety of project affected communities during the project lifecycle from both routine and non-</li> </ul>	This standard recognizes that project activities, project equipment and infrastructure increase the exposure of project stakeholder communities to various health.	The National Action Plan for Health Security in 2018, The Public Health Ordinance (1960) and Public Health Act (Amended in 2004) revise and consolidate all the laws and regulations	The regulations do not consider assessment of events and measures to deal with occurrences and emergencies. The regulations lack	Anticipated impacts from the project are assessed and mitigated as part of this ESIA/ESMP. Contractors will also be required to adopt requirements stated for health-

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
<ul> <li>routine circumstances.</li> <li>To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.</li> <li>To ensure that safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.</li> </ul>	safety and security risks and impacts and thus recommends that projects implement measures that avoid or limit the occurrence of such risks. It provides further requirements or guidelines on managing safety, including the need for projects to undertake safety assessments for each phase of the project, monitor incidents and accidents and prepare regular reports on such monitoring. ESS4 also provides guidance on emergency preparedness and response.	pertaining to the prevention of disease, promote, safeguard, maintain and protect the health of humans and animals, and provide public health information to be disclosed to communities for related matters.	effective implementation strategies, emergency preparedness, community engagement, and integrated approaches.	<ul> <li>related issues, including implementation of the proposed occupational and community health and safety plans.</li> <li>WASHIT shall ensure that: <ul> <li>Projects undertake safety assessments for each phase,</li> <li>Incidents and accidents are monitored and reported, and regular monitoring reports are prepared.</li> <li>Incidents and accidents are investigated, and shortcomings are identified and taken into account to avoid such mishaps in the future.</li> <li>An emergency preparedness and response plan are prepared as part of this report</li> </ul> </li> </ul>
	ESS5: Land Acquisition, F	Restrictions on Land Use and Involunta	ary Resettlement	· · · · ·
<ul> <li>Avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives</li> <li>Avoid forced eviction</li> <li>Mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on</li> </ul>	<ul> <li>Resettlement activities should be planned and implemented with appropriate disclosure of information, meaningful consultation, and participation of those affected.</li> <li>Applies to permanent and temporary displacement, listing types of infringements</li> </ul>	<ul> <li>The 2015 National Land Policy (NLP) provides conditions for land acquisition, ownership, transfer, amount required for land lease and purchase etc. It went further to disclose the two inherited land tenure systems - dual land tenure (freehold in Freetown and leasehold in the provinces). Similarly, the National Land Policy Act and the</li> </ul>	<ul> <li>Ownership is shown with a signed survey plan and letter/ a deed</li> <li>Only those with legal rights are eligible for replacement land or compensation.</li> <li>The act does not have a clear regulation or</li> </ul>	<ul> <li>A Resettlement Framework (RF) will be formulated for the project to be adopted. Compensation will be based on full replacement value and the</li> <li>Eligibility and entitlement outlined in the RF will be applicable for the Project.</li> <li>When there exist adequate</li> </ul>

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
<ul> <li>timely compensation for loss of assets at replacement cost; and (b) assisting displaced persons in their efforts to improve, or at least restore their livelihoods and living standards in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.</li> <li>Improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure.</li> <li>Conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant.</li> </ul>	<ul> <li>owners</li> <li>Recognizes customary land ownership and the impacts of access restrictions on livelihoods.</li> <li>Involuntary resettlement will refer to both physical displacement (relocation or loss of shelter) and economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use and will cover those who do not have formal claim to the land that they use or live on.</li> <li>ESS6 Biodiversity Conservation</li> </ul>	2022 also strengthen land governance in Sierra Leone.	<ul> <li>preparation of the land acquisition and resettlement action plan.</li> <li>Not clear how the security of tenure should be treated in the context of involuntary resettlement.</li> <li></li></ul>	<ul> <li>Project locations, scope of investment and the corresponding risks, the Project will prepare, consult with stakeholders, disclose implement and monitor a Resettlement Plan and/or Livelihood Restoration Plan as per the requirement of ESS5, as stated in the RF.</li> <li>Moreover, for risks and impacts in relation to access restrictions to land use, a Process Framework (PF) will be applied as described in the RF.</li> <li>At times of differences between the provisions of SL land acquisition laws and that of ESS5, the most stringent/ beneficial to PAPs will prevail.</li> </ul>
• To protect and conserve	ESS6 promotes the	The Forestry policy and its	Adequate provisions are	The project will take measures to
biodiversity and habitats	conservation of biodiversity or	amendment in 2022 the	covered by national	protect and conserve biodiversity
• To apply the mitigation	natural habitats and supports	National Protected Area	laws and policies. While	and habitats and to meet all

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
hierarchy and the	the protection and	Authority and Conservation	policies exist, there are	requirements specified in the ESS6
precautionary approach in	maintenance of the core	Trust Fund Act (2012), the	challenges in	<ul> <li>although the project site is a</li> </ul>
the design and	ecological functions of natural	National Biodiversity Strategy	implementing and	developed area with very limited
implementation of projects	habitats and the biodiversity	and Action Plan, the	enforcing these policies	biodiversity coverage. The
that could have an impact on	they support.	Conservation of Wildfire policy	effectively, and	application to this project is
biodiversity.	It also encourages projects to	are policies that provide	challenges in	limited.
• To promote the sustainable	incorporate into their	measures for protecting	conducting	
management of living	development, environmental	biodiversity and ensuring the	comprehensive	
natural resources.	and social strategies that	sustainable management of	assessment and	
• To support livelihoods of	address any major natural	living natural resources. They	monitoring, especially	
local communities, including	habitat issues, including	promote co- management	with the lack of up-to-	
Indigenous Peoples, and	identification of important	activities that require working	date data and long-term	
inclusive economic	natural habitat sites, the	with local communities to take	financing.	
development, through the	ecological functions they	governance actions that reduce		
adoption of practices that	perform, the degree of threat	the risk of biodiversity loss. The		
integrate conservation	to the sites, and priorities for	Forestry Act (1988) and the		
needs and development	conservation.	Forestry Regulation (1990). The		
priorities.		Act is being updated.		
		ESS8 Cultural Heritage	1	
• To protect cultural heritage	This standard sets out general	The Environmental Protection	National regulations	Stipulations in ESS8 will be strictly
from the adverse impacts of	provisions on cultural heritage	Agency Act and its amendments	and policies do not	adhered to.
project activities and support	preservation and recommends	include provisions for cultural	sufficiently address	Adverse impacts on cultural
its preservation.	protecting cultural heritage	heritage in the context of ESIAs	cultural heritage as an	heritage from the project
• To address cultural heritage	from the adverse impacts of	(mandates consideration of	integral part of	activities are identified in the ESIA,
as an integral aspect of	project activities. It addresses	cultural heritage in project	sustainable	and provisions will be made to
sustainable development.	physical or tangible cultural	planning).	development and	support its preservation through
• To promote meaningful	resources, which are defined as	The National Land Policy 2015	promotion of equitable	the proposed mitigation
consultation with	movable or immovable objects,	recognizes the importance of	sharing of benefits. The	measures.
stakeholders regarding	sites, structures, groups of	cultural and historical sites,	policies have limited	All contracts will include a Chance
cultural heritage.	structures, and natural	encouraging the integration of	recognition and	Find Procedure.
• To promote the equitable	features and landscapes that	cultural heritage considerations	protection of	Contractors shall be instructed
snaring of penefits from the	nave archaeological,	in aevelopment projects.	indigenous people's	about the importance of
use of cultural heritage.	paleontological, nistorical,	(10C2) among dark in (10C2)	cultural neritage and	preserving archeological and
	arcnitectural, religious,	(1962, amended in 1967) also	lack a structured	cultural neritage, the needed
	aesthetic, or other cultural	provides for the cultural	mechanism for	measures and procedures,

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone		
		Regulation		
	significance. Physical cultural	heritage of archaeological,	community	including the Chance Find
	resources may be in urban or	historical, and other scientific	involvement and	Procedure.
	rural settings, and may be	interest.	benefit-sharing in	
	above or below ground, or		heritage management.	
	underwater. It also addresses		The policies also lack a	
	intangible cultural heritage		clear emergency	
	such as practices,		procedure for cultural	
	representations, expressions,		heritage protection.	
	instruments, objects and		Intangible cultural	
	cultural spaces that		heritage is not covered	
	communities recognize as part		in Sierra Leonean	
	of their cultural heritage.		legislation either.	
	Projects involving significant			
	excavations, demolition,			
	movement of earth, flooding,			
	or other environmental			
	changes are to take cognizance			
	of this standard in the ESMF.			
	ESS10 Stakeho	Ider Engagement and Information Dis	closure	
<ul> <li>To establish a systematic</li> </ul>	ESS10 seeks to encourage open	The EPA Act (2022) requires	Sierra Leone regulations	Aligning with ESS10 would require
approach to stakeholder	and transparent engagement	parties seeking permits to	cover some aspects of	strengthening stakeholder
engagement that will help	between the borrower and the	implement environmentally	stakeholder	engagement:
the borrower identify	project stakeholders PAP	sensitive projects to develop an	engagement, but	<ul> <li>The project shall develop a</li> </ul>
stakeholders and build and	throughout the project	ESIA and organize public	significant gaps exist in	Stakeholder Engagement
maintain a constructive	lifecycle. The standard	disclosures following	comparison with ESS10,	Plan (SEP) that sets a plan for
relationship with them as	establishes a systematic	procedures that allow	such as the lack of	consultations throughout the
project-affected parties. To	approach to stakeholder	stakeholders at different levels	continuous engagement	project lifecycle, with all
assess the level of	engagement that potentially	to understand sources of risks	through all project	categories of stakeholders
stakeholder interest and	helps the borrower to identify	and agree with proposed	phases, inadequate	including vulnerable groups.
support for the project and	stakeholders and build and	measures for monitoring and	mechanisms to ensure	The SEP shall also include a
to enable stakeholders'	maintain a constructive	mitigation.	inclusive consultation,	GRM based on the existing
views to be considered in	relationship with them, as well	The Local Government Act and	especially for vulnerable	grievance redress mechanism
project design and	as disclose information on the	its amendment in 2022	groups, limited	for resolving grievances for
environmental and social	environmental and social risks	promotes community	provisions for proactive	the Sierra Leone Water
performance.	and impacts to stakeholders in	participation in local	information disclosure	Security and Wash Access

Scope/Objective	Description of Bank Policy	Description of the main	Gaps Identified	Gap Bridging Actions
		Government of Sierra Leone Regulation		
<ul> <li>To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.</li> <li>To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.</li> <li>To provide project-affected parties with accessible and inclusive means to raise issues and grievances and allow the borrower to respond to and manage such grievances.</li> </ul>	a timely, understandable, accessible, and appropriate manner and format. It recommends that stakeholder engagements commence as early as possible in the project development process and continue throughout the lifecycle of the Project. This allows for stakeholders' views to be considered in project design and environmental and social performance. The borrower is also expected to implement a grievance mechanism to receive and facilitate resolution of concerns and grievances.	development and governance and encourages city councils to involve residents in decision- making, particularly for infrastructure or services impacting the local community. The Right to Information Act (2013) provides for the disclosure of information held by public authorities or people providing services to the public. It requires public disclosure processes that foster transparency and meaningful engagement.	to the public, absence of formal, accessible, and effective grievance mechanisms and weak documentation and reporting requirement for engagement activities.	<ul> <li>Improvement Project.</li> <li>The GRM is a decentralized and transparent system which ensures quick resolution of complaints and disputes; it also has the structure for disclosing vital information to requisite stakeholders.</li> <li>It also provides a means for effective and inclusive engagement. This instrument which satisfies almost all the requirements of ESS10 will be applied during project implementation to bridge the gaps in national regulations and policies.</li> </ul>

# 3.7 Relevant Regional and International Protocols on Water Security and WASH

Sierra Leone has ratified several regional and international protocols and treaties related to water security and WASH. These protocols and treaties provide a comprehensive framework for addressing water security and WASH issues in Sierra Leone, ensuring sustainable development and protection of human rights.

- **RAMSAR Convention**: This convention focuses on the conservation and wise use of wetlands. Sierra Leone signed the RAMSAR Convention on December 13, 1999, and it went into effect on April 13, 2000. The Sierra Leone River Estuary (SLRE) is a key RAMSAR site in the country
- **Basel Convention**: This convention deals with the control of transboundary movements of hazardous waste and their disposal
- **Stockholm Convention**: This convention addresses persistent organic pollutants and aims to protect human health and the environment from these chemicals
- Sendai Framework for Disaster Risk Reduction: This framework aims to reduce disaster risk and enhance resilience to disasters
- United Nations Convention on Biological Diversity (CBD): This convention focuses on the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources
- UN Framework Convention on Climate Change (UNFCCC): This convention aims to stabilize greenhouse gas concentrations in the atmosphere to prevent dangerous anthropogenic interference with the climate system
- **Convention on the Rights of the Child**: This convention protects the rights of children, including their right to access clean water and sanitation
- **ILO Conventions**: These conventions address various labor standards, including those related to water and sanitation in the workplace
- Convention on the Rights of Persons with Disabilities (CRPD): This convention ensures that
  persons with disabilities have access to clean water and sanitation on an equal basis with
  others
- Convention on the Elimination of All Forms of Discrimination against Women (CEDAW): This convention aims to eliminate discrimination against women, including in access to water and sanitation
- Montreal Protocol: The Montreal Protocol primarily focuses on the protection of the ozone layer by phasing out the production and consumption of ozone-depleting substances (ODS). Implementing energy-efficient technologies in water and sanitation infrastructure can lead to significant cost savings and environmental benefits

# **3.8 Institutional Framework**

The following government institutions associated with the WASH project are described in regard to the potential environmental and social issues. The role of each institution, with respect to the implementation and monitoring of the ESMF, is summarized in table 7.

Institution	Role and Responsibilities
Ministry of Finance (MoF)	The MoF has the broad responsibility for Project implementation and compliance with the legal agreement between the Bank and the GoSL. It has a strategic oversight of financial management, procurement, and monitoring and evaluation functions of the project. The Ministry of Finance is the organ of government responsible for financial management of government revenue and other finances. It is the beneficiary of the project.
Ministry of Water Resources (MWR)	This Ministry has the mandate for the development of policies and programs for the provision of safe drinking water on a constant and sustainable basis to the entire population of Sierra Leone. In the context of the market upgrade ESIA/ESMP, MWR is in charge of monitoring water quality and managing any impacts on local water resources associated with the project implementation.
WASH Project Implementation Team (WASHIT)	The WASHIT works under the supervision of the Ministry of Water Resources. The WASHIT is responsible for project management and implementation, including environmental and social (E&S) management, M&E, communications, and grievance redress.
National Water Resources Management Authority (NWRMA)	NRWMA is mandated to ensure that the water resources of the country are controlled in a sustainable manner. The agency's interface coordination is required for the effective execution of water scheme project under the project intervention investment consideration in the communities.
Ministry of Environment and Climate Change (MoECC)	The Ministry of Environment in Sierra Leone is responsible for overseeing and coordinating matters related to environmental protection and management in the country. Its primary role is to provide policy direction, guidance, and support to promote sustainable development practices that safeguard the environment and natural resources.
Sierra Leone Water Company (SALWACO)	The company is a government-owned entity under the direct supervision of the Ministry of Water Resources that provides piped water supply services. In the context of the market upgrade, it ensures sustainable water sourcing and management, particularly regarding water availability and quality in project areas (main market site and relocation site). It has no major role in the ESIA-ESMP.
The Guma Valley Water Company	GVWC is a company established to harness and supply portable drinking water to the urban and per-urban areas within Freetown. It aims to provide a sustainable supply of water for public and private purposes and to provide for other related matters. GVWC is moving towards a commercially orientated approach in fulfilling its functions for the control, development and management of their works and water supply services within the limits of supply. The Act establishes provisions for consultation with the Sierra Leone Electricity & Water Regulatory Commission (EWRC) to regulate and establish a fair tariff.
Ministry of Local Government and Rural Development (MLGRD)	The Ministry of Local Government and Rural Development is mandated to provide an effective link between national development priorities and local-level development initiatives and to uphold a democratic local government system reflecting a decentralized approach and facilitating the provision of efficient and effective delivery of quality services at the local level (MLGRD, 2021). The supervisory coordination of the ministry is required to provide guidance for project prioritization in collaboration with FCC and LC and under stakeholders.

Table 7: Project Institutional Framework

Institution	Role and Responsibilities			
Ministry of Health and Sanitation (MoHS)	The Ministry's vision is to ensure a functional national health system delivering efficient, high quality healthcare services that are accessible, equitable and affordable for everybody in Sierra Leone, and the overall goal is to maintain and improve the health of its citizens.			
The National Protected Area Authority (NPAA)	NPAA is established to exercise oversight authority over National Parks and Protected Areas designated for conservation purposes so as to protect the fauna and flora in its natural state, promote sustainable land use practices and environmental management			
Freetown City Council (FCC)	The City Council is responsible for a range of vital services for people and businesses within its jurisdiction. These encompass widely recognized functions such as social care, schools, housing and planning and waste collection, as well as essential services such as licensing, business support, registrar services and pest control.			
Western Area Rural District Council (WARDC)	The Western Area Rural District Council (WARDC) is a local government authority in Sierra Leone. It is one of the administrative units within the Western Area of Sierra Leone. The council governs and provides public services to areas within its jurisdiction. The Chairman is the head of WARD-C, supported by the Chief Administrator, who advises on the technical decision concerning the administration and general operations of the Council. The Chief Administrator supervises the professional staff of WARD-C and also serves as the vote controller ensuring prudent management of resources for council.			
Ministry of Social Welfare, Gender and Children's Affairs (MSWGCA)	The Ministry is responsible for responding to the social needs pertaining to Gender inequalities, social depravity of groups like the disabled, women's rights, children's rights, religious rights among others in Sierra Leone.			
Ministry of Labor and	The Ministry contributes to Sierra Leone's socio-economic development by developing and implementing policies, legislation, and programs focused on promoting social security and protection, preventing workplace accidents and diseases, fostering sound labor and employment relations, enhancing vocational guidance and job counseling, upholding the dignity of employers and employees, and maintaining essential labor statistics.			
	In the context of the market upgrade ESIA/ESMP, MLSS's role lies in monitoring labor practices, overseeing employment conditions for workers and the implementation of the LMP, and ensuring occupational health and safety standards through implementation of the OHS Plan.			
Ministry of Tourism and	The Ministry promotes sustainable tourism for economic growth and socio-cultural empowerment to preserve, protect and promote cultural diversity with a view to reviving and strengthening national consciousness, understanding and appreciation of cultural heritage and artistic creativity, as well as enhance its contribution to poverty reduction and overall development.			
Cultural Affairs (MTCA), Monuments and Relics Commission	The Monuments and Relics Commission has the mandate of providing for the preservation of Ancient, historical and natural monuments, relics and other objects of archaeological, ethnographical, historical or other scientific interest. It has the responsibility of ensuring the preservation, protection and promotion of Sierra Leone's cultural heritage assets. It will be responsible for making sure that project staff and workers, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to the chance find procedure during the project induction.			

Institution	Role and Responsibilities
Ministry of Works and Public Assets (MOWPA)	Responsible for the issuance of works guidelines for construction.
Ministry of Lands, Housing and Country	Responsible for the issuance of building permits. Ensures that construction meets safety and building standards in line with national regulation. Provide policy direction and guidance for effective planning, sound environmental
Planning (MLHCP)	protection, and land management
The Environment Protection Agency (EPA)	EPA is a statutory agency for the protection of the environment and for other related matters. The EPA has the overall responsibility of permitting and monitoring the project's compliance with the standards and legislation relating to environment, and the implementation of the ESMF as stipulated in the revised EPA Act of 2022
The Forestry Department	The Forestry Act of 1988 was an amendment to the Forestry Ordinance of 1912 and 1942 that established the Forestry Division. The mandate of the Forestry Division now Forestry Department mandate is on promoting multiple-use management of forests for sustainable yields. Prior to the enactment of the National Protected Area Authority and Conservation Trust Fund Act of 2012, the management and protection of forests, wildlife, wetland, protected areas, forest reserves, hunting reserves, national park were all under the Forestry Division.
Sierra Leone Police (SLP)	SLP are responsible for controlling operations and enforcing regulations. SLP supports enforcement of environmental and social protection measures and regulations, especially in preventing and controlling non-compliances and illegal activities in the project area.
Sierra Leone National Fire Force (SLNFF)	SLNFF is responsible for enhancing effective management and protection of fire disasters against human resources and property, and hence reducing poverty and contributing to economic growth, through efficient firefighting, search and rescue and disaster preparedness mechanisms in the country.
Non-Governmental Organizations (NGOs)	Local NGOs are licensed by the MoPED and work on national issues of concern through advocacy, awareness raising, lobbying, support to vulnerable groups, etc. They will play a role in and support in receiving and handling grievances related to GBV and SEA/SH and managing livelihood restoration programs. NGOs will work in coordination with the City Council (level 1) and WASHIT (level 2) to address such grievances such as the Tacugama Chimpanzee Sanctuary located just on the outskirts of Freetown, in the Western Area Peninsula National Park.
Community Based Organizations (CBOs)	Local CBOs are licensed by local councils; their role focuses on issues impacting the community, to address their needs and reach marginalized groups. They conduct advocacy campaigns on local issues of concern.
World Bank (WB)	The WB is supporting Sierra Leone's efforts to enhance access to infrastructure and basic services in Project target areas, strengthen disaster preparedness and response systems, improve community health conditions and contribute towards institutional strengthening & human capital development for service delivery, tools & facilities for water resource management, improvement in urban water & sanitation delivery.

# **3.9 Required Licenses**

Table 8 provides a list of statutory requirements that will be obtained prior to project commencement.

## Table 8: Licenses Required

List of statutory approvals or licenses to be obtained	Regulatory Framework	Responsible Agency
EIA license	The Environmental Protection Agency Act of 2008 (amended in 2010 and 2022),	Environmental Protection Agency
Water infrastructure	National Water Resources Management (NWRM) Act No. 5 of 2017	National Water Resources Management Agency (NWRMA)
Water usage and permit - licensing and permitting for groundwater use and raw water	National Water Resources Management (NWRM) Act No. 5 of 2017	National Water Resources Management Agency (NWRMA)
Water Discharge Permit	Water Pollution Regulations 2021; Part II	National Water Resources Management Agency (NWRMA)
Building Permit	The Sierra Leone National Land Policy, 2015	Ministry of Lands, Housing, and Country Planning
Construction permit	Local Government Act of 2004 (amended in 2017 and 2022)	Local councils in Sierra Leone
Effluent Discharge Permit	Section 98 of the Local Government Act, 2022.	Freetown City Council

# 4. Environmental and Social Baseline

This Chapter presents the descriptions of the biophysical and socio-economic environment across the Western Area and WARD C areas in Sierra Leone. The physical and biological factors considered included climate, topography and geology, soils, hydrology, flora and fauna and socio-economic factors among others.

# 4.1 General overview of Sierra Leone

Sierra Leone is in West Africa between the Republic of Guinea in the north and the Republic of Liberia to the southeast. The western border stretches for 465 kilometers along the Atlantic Ocean. It is situated in the northern hemisphere between latitudes 7° and 10° N and longitudes 10° and 13° W and spans 72,325 square kilometers. Coastal plains, interior lowland plains, plateaus, hills, and mountains characterize Sierra Leone, and the country is endowed with substantial natural resources: mineral deposits, fertile agricultural land, and a deep natural harbor. Sierra Leone is divided into 5 administrative regions namely, the Northern, Eastern, Southern, North-Western Provinces and the Western Area. These regions are further divided into 16 administrative districts. The Western Urban and Western Rural are the districts in the Western Area.



Figure 1: Map of Sierra Leone showing the Western Area in Freetown (Source: world atlas)



Figure 2: Project Map

# 4.2 Environmental Baseline

# 4.2.1 Climate

Sierra Leone has a tropical climate with distinct wet and dry seasons. The wet season starts in May and ends in November and is characterized by torrential rainfalls and high humidity. The dry season starts in December and ends in April, which includes harmattan, when cool, dry winds blow in off the Sahara Desert. Figure 3 describes the minimum and maximum surface air temperature and precipitation.



Figure 3: Monthly climatology of Average Minimum and Maximum Surface Air Temperature and Precipitation (1991-2020) in the Western Area Sierra Leone (Source: WBG Climate Change Knowledge Portal)

# 4.2.2 Temperature

The local climate is tropical, with coastal areas having hot and humid weather and inland areas having a more temperate climate. The average annual temperature is 26.7°C and the annual average rainfall is 2,746 mm (1961 – 1990). The rainy season is largely controlled by the movement of the tropical rain belt, Inter-Tropical Convergence Zone (ITCZ), which oscillates between the northern and southern tropics over the course of a year (*WBG Climate Change Knowledge Portal*)



Figure 4: Observed annual mean surface air temperature (1901-2023) in the Western Area (Source: WBG Climate Change Knowledge Portal)



#### 4.2.3 Land

Figure 5: LDN hotspots (source: GoSL, 2018) adapted from the Updated NDC (2021)

## 4.2 4 Water Resources

According to the Updated Nationally Determined Contribution from Sierra Leone in 2021, water quality and availability are highly vulnerable to climate impacts. Major water uses include domestic (drinking, cooking, hygiene), agriculture (irrigation), industrial (beer, spirits, soft drink, cooling and waste disposal), and hydroelectric power production. Additionally, rural migration to Freetown, during and since the civil conflict has increased pressure on urban water resources. Reliable and clean access water is essential for these multiple uses and populations with implications for social vulnerability and poverty. Shifting rainfall patterns has created water supply problems. This has led to decreasing access to water and reduced stream flow of rivers and streams. Stream flow has decreased as there has been a decrease in rainfall since the 1970s. For example, the stream flow to the Mano River fell by 30% between 1971 and 1989. This has large impacts on access to water since about 80% of the rural population receives water from surface sources, including many streams and ponds. These streams also dry up during severe droughts which are likely to become more common. There is also seasonal variation where 40% of the protected water points suffer water shortages in the dry season (USAID 2016), demonstrating that existing vulnerability is already acute.

Water resources include atmospheric, surface and groundwater. Sierra Leone has nine major river systems. The Rokel/Seli, Pampana/Jong, Sewa and Waanje systems originate from within the country, as do the numerous coastal streams and creeks; the Great and Little Scarcies and Moa Rivers originate from the Fouta Djallon Plateau in the Republic of Guinea, and the Mano River originates from the Republic of Liberia. These rivers range in length from 160 km for the Great Scarcies to 430 km for the Sewa River; their catchment areas range from 2,530 km2 for the coastal streams and creeks, to 14,140 km2 for the Sewa River. The total mean annual runoff from the river basins is of the order of 160 km3, with monthly runoff following rainfall variability. Internally, renewable water resources are over 29,000 km3 per capita, which is six times the average for Africa. Produced groundwater is estimated at 50 km3 annually and much of this (80%) overlaps between surface and ground water.



Figure 6: River basins of Sierra Leone (Sources: reproduced with permission from the Ministry of Water Resources/ASI (2015)) adapted from the Updated NDC (2021)

The Sierra Leone coastal area can be divided into four main hydrological areas (Johnson and Johnson, 2004). These are the Scarcies River, Sierra Leone River, Sherbro River and the Gallinas and Mano Rivers hydrological areas.

i. **The Scarcies River Hydrological Area:** The river is tidal and during the rainy season rises about 2.7m. The wide estuary mouth has mud banks and sand bars forming Yelibuya and Kortimaw islands. Further inland, it splits into the Great and Little Scarcies rivers which are relatively narrow and lined with mangroves.

- ii. **Sierra Leone River Hydrological Area:** The main rivers entering this hydrological area are the Rokel, Port Loko creek and Kumrabe creek.
- iii. **Sherbro River Hydrological Area:** Three major river systems, the Taia, Sewa, and Wange rivers enter the Sherbro River Estuary through a complex system of brackish water channels draining an extensive area behind the ancient beach ridges in the southeast region. The water divides around Sherbro Island and flows west into Yawri Bay and south along Turner's Peninsula.
- iv. **Gallinas and Mano Rivers Hydrological Area:** The Mano River divides Sierra Leone from Liberia and drains a large catchment area in the south. The stronger surf and currents have formed an 8km spit between the open sea and the narrow lagoon fed by the rivers.

# 4.2.5 Soils

The soil of Sierra is ferralitic and excessively leached because of the humid tropical conditions. This is particularly true for the upland soils with such common minerals, as calamite; aluminum and iron organic matter content is low, making the soils less suitable for cropping. In contrast the inland valley swamps are hydromorphic and relatively fertile and suited for rice cultivation (NBSAP 2004-2010).

# 4.2.6 Forests

According to the Global Forest Watch, from 2002 to 2023, Western Area lost 2.27 kha of humid primary forest, making up 23% of its total tree cover loss in the same time period. Total area of humid primary forest in Western decreased by 18% in this time period. In 2020, the Western Area had 41.0 kha of natural forest, extending over 57% of its land area. In 2023, it lost 453 ha of natural forest, equivalent to 266 kt of CO<sub>2</sub> emissions. In 2020, Western had 48.5 kha of land above 10% tree cover, extending over 69.3% of its land area. In 2017, Sierra Leone revised its National Biodiversity Strategy and Action Plan (NBSAP) to assess the status of biodiversity, including forest resources, and propose action plans for sustainable management.





# 4.2.7 Vegetation distribution

Sierra Leone's vegetation comprises two major biogeographic ecosystems: the Sudan-Guinea savanna biome which occupies most areas of the north to the north-west; and the Guinea-Congo forest biome stretching across the south to north-eastern flank of the country and constitutes the westernmost extent of the Upper Guinea forest endemic area. Mixed elements of these two major biomes occur in places,

mainly in the transition zones between the northern and southern sections. The current vegetation map of Sierra Leone (Figure 8) shows a vast area of degraded land (pale green), mainly comprising bush fallows (farm bush), covering approximately 50% of the land area. The closed forest vegetation, which is apparently declining, accounts for only about 3-5% of the land area (Savill and Fox: 1969; Gordon et al 1980; Unwin 1922), which is a vast difference from the estimated 60% cover over a century ago. However, Elliot and Raisin (1893) observed that most of the country was covered in secondary forest by late 1800s. The Gola Forest National Park accounts for the largest tract of closed forest cover: 71,070 ha representing ca25% of the estimated 285,000 ha of forest estate in the country. Significant closed forests can also be found in the major forest reserves.



Figure 8: Vegetation map of Sierra Leone (Source: NBSAP (2017-2026)

# 4.2.8 Fauna Biodiversity

There are approximately 147 known species of wild mammals, 172 known breeding bird species, 67 known reptile species, 35 known amphibian species, 750 species of butterflies including the giant African swallowtail, one of the largest butterflies, and about 200 known species of fish (NDC, 2021). According to Sierra Leone's Second National Biodiversity Strategy and Action Plan (2017-2026), Sierra Leone has over 2000 species of vascular plants including 74 endemics to the West African sub-region and 90 species listed as threatened and near threatened based on IUCN (2016).

# 4.2.9 Western Area Peninsula Forest National Park, Sierra Leone

According to Sierra Leone's Second National Biodiversity Strategy and Action Plan (2017-2026) about 29 forest reserves are under one level of protection or the other, the largest tract being the Gola National Park. The protection of natural non-forest came into prominence in 1995 with the gazettement of the Outamba-Kilimi National Park, in the north of the country, which is the largest portion of savanna ecosystem currently under protection. Figure 9 provides data on the major designated protected areas and their sizes.

The UNESCO World Heritage Convention describes the Western Area Peninsula National Park (WAP-NP), as occupying the center of the peninsula, covering about 17,000 hectares of closed forest. Hosting a range of hills with a highest peak at 971 meters, one of the eight biodiversity hot spots of the country and hosts

80-90% of Sierra Leone's terrestrial biodiversity. Being a non-hunting reserve, rare animals are found such as Jenkins duikers and chimpanzees.

The National Protected Areas Authority (NPAA), the agency responsible for implementing all other Acts and related instruments geared towards the conservation of biodiversity, particularly the Wildlife Conservation Act. Table 9: Classification of Habitat Types of the Western Area Peninsula Forest National Park and Figure 10 shows an Imagery showing the Western Area National Park.

Protected Terrestrial Forest	Size (ha)	Province
Gola National Park	77,044	East
Tonkoli Forest Reserve	47,656	North
Loma Mountains National Park	33,200	North
Kambui Hills Forest Reserve	21,213	East
Dodo Hills Forest Reserve	21,185	East
Western Area Peninsula Forest NHFR	17,800	West
Tama Forest Reserve	17,094	North
Nimimi Hills Forest Reserve	15,557	East
Tingi Hills Forest Reserve	11,885	East
Kangari Hills Forest Reserve	8,573	South
Kuru Hills Forest Reserve	7,001	North
Kasewe Forest Reserve	2,333	North
Moyamba Hills Forest Reserve	ca4000	South
Total size	285,000	

Figure 9:The Major Components of the Forest Reserve Estate in Sierra Leone, their respective sizes and region where they occur (Source: Second National Biodiversity Strategy and Action Plan (2017-2026).

IUCN Habitat	Coverage (%)
Forest	70
Grassland	5
Marine Coastal/Supratidal	1
Rocky Areas (e.g., inland cliffs,	1
mountain peaks)	
Savanna	18
Wetlands (Inland)	5

Source: World Database of Key Biodiversity Areas



Figure 10: Map showing the Western Area National Park

## 4.2.10 Infrastructure

Infrastructure in Sierra Leone is vulnerable to climate impacts across the country. This is especially true as the current infrastructure is non-existent or poor due to the war and deferred maintenance. Water and sanitation infrastructure are sensitive to storm surge, sea level rise and flooding. Already a large percentage of the population lacks access to clean water and sanitation facilities. Wastewater collection and treatment facilities are often situated at the lowest point possible as their operation often depends on gravity flow and can easily be inundated by water level rise. Therefore, climate-sensitive innovative designs of sanitation infrastructure are critical in adapting to climate change.

# 4.2.11 Disaster Management

Sierra Leone is vulnerable to the increasing severity of droughts, floods and severe storms and their impacts on sectors such as agriculture, fisheries, as well as infrastructure and hydroelectric power production. Urban and rural seasonal flooding, recurrent flash flooding, and coastal flooding are the most observed, leading to seasonal flooding of agricultural fields and low-lying areas, flooding along the coast areas and flood waters overflowing into roads and into residents' homes. Vulnerable areas include Western Area, Eastern, Southern and Northern regions. More specifically, the most affected areas in the recent past during these last years include: Kroo Bay, Susan's Bay, Granville Brook, Lumley area in Western Area, Port Loko and Kambia Districts, the Newton catchment area, Pujehun and Bo areas, Kenema and Moyamba Districts, and coastal beaches of the Western Area Peninsula (Government of Sierra Leone 2018).

# 4.3 Socio-economic Environment

# 4.3.1 Overview of economy (National)

According to the results of the 2004 Sierra Leone Population and Housing Census, the population of Sierra Leone is estimated at about 4.9 million in an estimated 819,854 households. For the period 1985-2004, the population growth rate was estimated at 1.8 percent. About 64 percent of the population resides in rural areas.

Sierra Leone was ranked last among the 177 countries surveyed globally in the 2007/2008 United Nations Human Development Index, with a per capita GDP of about US\$806, a life expectancy of 41.8 years, and an adult literacy rate of 34.8 percent. The UNDP 2007/2008 Human Development Report estimates that in 2005 about 52 percent of the population lived on less than US\$1 a day (UNDP, 2007). The most recent household income and expenditure survey (2003-04) showed that about 70 percent of the population lives below the poverty line according to the National Poverty Line of Le 2,111 per day (SSL,2004).

Overall, poverty is highest in rural areas, with 79 percent of the rural population living below the poverty line. The most acute form of poverty, insufficient food, is concentrated mainly in rural areas. About 68 percent of the population cannot afford enough food to eat. Three out of four people (75 percent) in rural areas outside Freetown do not attain the minimum daily calorie intake (2700 calories). The poor in Sierra Leone can meet only about 71 percent of their basic needs.

The civil war resulted in a substantial reduction in the standard of living and, for many people, reduced access to food. A poor and undernourished population is more susceptible to various diseases. Thus, rising maternal and child mortality rates, increasing rates of illiteracy, and rising unemployment levels characterize the living conditions in many parts of Sierra Leone. The HIV/AIDS pandemic has also had a major impact on all sectors of the economy through loss of production and labour force. Against this background, the government of Sierra Leone in 2005 launched the Economic Recovery Strategy, aimed at restoring economic growth, generating employment opportunities, and reducing poverty levels (Poverty Reduction Strategy Paper, March 2005).

# 4.3.2 Population (national)

The current population of Sierra Leone is 8,264,042 based on projections of the latest United Nations data. The growth rate in Sierra Leone has been above average throughout its history, and the steady increase in population is still going on today and the annual rate of change has been over 2% since around the turn of the century. The median age in Sierra Leone is 18.5 years, which is disproportionately young and makes for a very young working population. The average woman gives birth to roughly 4.5 children, and this high birth rate is the cause of the substantial population growth rate in the country.

The annual growth rate in the country is not expected to remain over 2% for much longer. Current projections suggest that the rate of growth will peak at 2.14% in 2020 before declining towards 1.22% by the year 2050, a drastic drop. The population numbers will still change drastically during this time, however. The same set of predictions state that the population of Sierra Leone will be 8,046,931 in 2020, 9,719,531 in 2030, 11,403,087 in 2040 and 12,971,626 by the year 2050.

## 4.3.3 Land ownership

Land can be owned from the following categories in Sierra Leone: Private land, state land, communal land, and family land. State land and private landownership operate in the Western Area. In the provinces,

communal and family land ownership is prevalent. State or public lands are mostly unoccupied land, and land compulsorily acquired by the Government. Private land is land in which an individual has a freehold interest. Communal land referred to as chiefdom or community land is held in trust by the chief for the community and in the case of family land the main interest is vested in the family group with a common ancestry. In the provinces private freehold is gaining ground in the urban centres. Most chieftaincy land is held by extended families who have rights of access, use, and transfer by lease.

# 4.3.4 Gender Based Violence (GBV) in Sierra Leone

Although gender-based violence (GBV) is a global problem, recent research in West Africa suggests that this problem becomes particularly acute in post-conflict countries. It is widely estimated that during Sierra Leone's civil war from 1991-2002, up to 250,000 women and girls were victims of GBV. Rape was used systematically by all factions and, although peace was declared in 2002, the trauma of war has left scars which run through the fabric of households, families, and communities.

In the urban areas, about 70 percent of the population is self-employed and largely engaged in petty trading in the informal sector. Many of the women, and men, involved in informal trading do so on a hand-to-mouth basis to sustain the welfare and basic consumption needs of their households. More men have access to paid jobs, while women tend to occupy less well-remunerated enterprises within the informal sector. In Sierra Leone, 12.4 percent of parliamentary seats are held by women, and 19.2 percent of adult women have reached at least a secondary level of education compared to 32.3 percent of their male counterparts. In the urban slum setting in Freetown, mostly along the coastline, cross-border trade is an important source of livelihood support, with 63 percent of urban women engaged in informal economic activities, mostly petty trading, and farming (Howard 2016). These disparities result from cultural and social barriers that discriminate against women's full socioeconomic participation (African Development Bank 2016).

GBV in Sierra Leone is a persistent problem which studies have shown to affect nearly all Sierra Leonean women who experience it in one form or another during their lifetime. According to the Sierra Leone Demographic and Health Survey 2019, 61 percent of women aged 15–49 have experienced physical violence since age 15, and 7 percent have experienced sexual violence. When it comes to intimate partner violence (IPV), 62 percent of ever married women have, at least once in their lifetime, experienced physical, sexual, or emotional violence (SSL and ICF International 2020). The violence takes various forms including domestic (physical, economic, and emotional/psychological), communal/cultural, sexual, and structural (equal rights discrimination), with domestic violence being the most common.

Sierra Leone is also a highly patriarchal society, and institutionalized gender inequalities are exacerbated by discriminatory behaviours, particularly with relation to marriage, property rights, and sexual offences. The high levels of illiteracy and poverty among Sierra Leonean women prevent them from upholding many of their internationally recognized rights. Similarly, economic insecurity contributes to women's vulnerability to GBV, and their marginalization from local and national decision-making processes further limits their ability to redress these gender inequalities. With the onset of the COVID-19 pandemic, it was feared that the rates of GBV, which were already unacceptably high in Sierra Leone, would be exacerbated.

# 4.3.5 Demography and Economy of FCC and WRD C

The population data of the areas under consideration for this project according to the 2015 census is: Freetown 1,055,964 and WARDC 437,036. In assessing the socio-economic status of these areas, reference is made to statistics in the SLIHS 2018. Most of the statistics provided are for the entire District in which

the city is located. Although this can be used to get a general sense of the situation in the Western Area, it should be borne in mind that the situation regarding most indices is likely to be better than for the district because of the big disparity between urban and rural statistics. As an example, poverty in rural areas at 73.9% is twice as much as for urban areas at 34.8%. Also, the poverty level in Freetown of 22.8% is considerably less than other urban areas whose poverty rate averages 49.3%.

Specific to the areas under consideration for this project, Freetown, the capital and largest city of Sierra Leone dominates the urban landscape with 14 percent of the country's population and generates 18.7% of the national economy. It is a major port city on the Atlantic Ocean. The city is Sierra Leone's major urban, economic, financial, cultural, educational and political centre, as it is the seat of the Government of Sierra Leone. The city's economy revolves largely around its harbour, which occupies a part of the estuary of the Sierra Leone River in one of the world's largest natural deep-water harbours. Freetown shares borders with the Atlantic Ocean and the Western Area Rural District.

Industries in Freetown include food and beverage processing, fish packing, rice milling, petroleum refining, and the manufacture of paint, plastic products and beer. Freetown is a touristic area and has many hotels and entertainment centres. Freetown has a relatively low poverty rate of 16.7%. WA Urban has a literacy rate of 79% and a disability percentage of 7.7%. About 81.6% of people in WA Urban have access to electricity. About 64.6% of residents have their household refuse collected by private individuals or into a government bin. 61.8% of people in WA Urban have access to safe drinking water (piped water, tube wells, protected dug wells) and 1.4% have no access to toilets.

The Western Area Rural District, once rural is now considerably urbanized and many areas in it are now regarded as an extension of Freetown. The scenic beaches make many areas in the WARD C touristic areas. Fishing is a major business along the coastal areas. Sand mining has become an environmental problem in many of the scenic beach areas. Major centres like Waterloo have become important commercial centres. WA Rural District has a poverty rate of 38.8%. WA Rural District has a literacy rate of 46.4% and a disability percentage of 3.9%. About 24.9% of people in the district have access to electricity. About 34% of residents have their household refuse collected by private individuals or into a government bin. 76.6% of people have access to safe drinking water (piped water, tube wells, protected dug wells) and 10% have no access to toilets.

In Freetown, most of the urban development is on the flat land adjacent to the coast, but increasingly urban developments are spreading up the hillsides due to a lack of land. A large number of households – both rich and poor - have built houses on the steep hillsides on the edge of the city, thus increasing their vulnerability to landslides caused by deforestation and soil erosion. The highest population densities are in the slums and informal settlement. The annual displacement of people by floods is now a normal event - the 2015 flood was particularly devastating. Coastal erosion is another powerful damaging socio-natural hazard that Sierra Leone is facing. mainly due to unsavoury human activities along the coast. Mining on the hill slopes creates frequent landslides and rock falls are reported during the rainy season, sometimes with fatal consequences. Extraction locations include ridges, hills, rocky beaches and riverbeds. The clearing of the vegetation cover for aggregate mining has a high degrading effect. These areas prone to natural disasters also have severe health and sanitation problems.

Other city councils The WARDC experiences the same problems as in Freetown. The FCC and the WARDC have signed an MOU to collaborate on many issues including Disaster Management. Meetings between their respective technical staff take place fortnightly.

# 4.3.6 Other Vulnerable Groups

According to the 2018 Integrated Housing Survey, 162,208 persons with disability are within the working ages of 15–64 years. Of this population, a total of 93,843 (57.8 percent) persons were employed the last week preceding the survey. Of the 57.8 percent, 74.4 percent are self-employed, and 15 percent are engaged in help without pay in households or businesses. Only 6.7 percent are regular employees. Child labour is common in Sierra Leone as children living in the poorest households in Freetown and other major cities are most often forced into providing labour. Many children living in Freetown are used as hawkers, spending long hours selling various items and pulling wheelbarrows, instead of being at school. This is in contravention of the ILO Convention 182 which prohibits the use of child labour. Street trading in the city of Freetown is a very serious problem.

According to the UNDP, approximately 2.7 million Sierra Leoneans are youth aged 15–35 years. The unemployment rate is higher among youth than those aged 35 and above. A lack of skills and experience is cited as one of the main reasons for the high youth unemployment rate. An ILO survey (SWTS Country brief, Sierra Leone. ILO, January 2017) registered a high youth labour underutilization rate, particularly among young women: it was 72.8 percent for young women and 59.9 percent for young men. The share of underutilized labour potential consisted of 48.5 percent of the youth population in irregular employment (either in self-employment or paid employment with contract duration less than 12 months), 11.8 percent unemployed, and 5.9 percent inactive non-students. More than three in four (78.5 percent) employed youth remain in vulnerable employment as own account workers (34.6 percent) or unpaid family workers (43.7 percent).

# **5. Analysis of Alternatives**

Project options and alternatives are considered to establish the preferred or most environmentally sound, financially feasible and least impactful option for achieving project objectives. There are usually several options and alternatives to any project. The selection of an Option or Alternative is premised on several considerations, including the desirability/acceptability of the project, Government policy or inclinations on the project, as well as the socio-economic impacts of the project. Even within a selected option, there are usually several alternatives, including technology, location, etc.

This section examines the options and alternatives that were considered for this project, and the basis on which the decision for the current option/alternative was selected.

# 5.1 Project Options

The options considered for this project including the considerations and implications of each option is as follow:

- No Project Option
- Delay Project Option; and
- Do-Project Option.
- Technological and Design Option.

# 5.1.1 Do-Nothing / 'Without Project' Option

The Do-Nothing/ 'Without Project' Option: This option assumes that the proposed project will not take place as planned. The implication of this option is that all the pre-implementation planning, feasibility studies and other pre-project investments and the positive impacts associated with the proposed project will not be realized. The positive impact of the proposed project is designed to increase access to water supply and sanitation services, improve the operational performance of water service providers, and enhance water resources management in Sierra Leone. Hence, from an environmental management perspective, investments will be beneficial in the sense that any potential negative impacts associated with the project will be avoided.

On the other hand, without improvements in Urban Water Supply and the Urban Sanitation Service Delivery Improvement including institutional strengthening, the WASH may not be improved. The "Do Nothing Option" should not be adopted, as the Western Area and limited parts of WARD C will benefit from increasing access to WASH services improving water security by strengthening sector institutions and capacity and enhancing water resources management in the Western Area.

This option is usually considered when funds are unavailable to implement the project, or when there are unacceptably high adverse environmental and social impacts associated with the project, or when very high public opinion is against the project, or conditions of political instability. Hence, this option is not desirable and was not considered.

# 5.1.2 Delay Project Option

Sometimes, project implementation may be delayed, either because the funds are not available, or due to civil unrest or war, or there is public outcry against the project. In such a situation, the project is delayed until the conditions become more favorable. In this case, however, the funds are readily available, having been budgeted for within the credit line provided by the World Bank. There is no civil unrest or war in the project environment, and neither is there

any public disapproval with the project. In fact, public opinion is very positive about the project. In view of the foregoing, it is not advisable to delay the project.

## 5.1.3 Do-Project Option

The "Do-Project Option" is recommended as a better option than the "Do Nothing/Without Project" option and the "Delay Project Option". The anticipated benefits of implementing the project include:

Sierra Leone faces significant challenges related to climate change impacts such heavy rains, flooding, and rising sea levels which threaten water supply and sanitation infrastructure systems. Project options should consider climate-resilient and innovative water and sanitation infrastructure that are sustainable durable, flexible, cost efficient, energy efficient and easy to operate and maintain.

# 5.1.4. Technological and Design Option

At this stage, the exact technology is not decided and will be considered during the site-specific instruments' preparation.

## Water Infrastructure

The Project will increase hydropower generation at Guma dam and will optimize energy efficiency in the distribution network.

## Alternative Excavation Methods

During the construction phase of the project, there will be a lot of excavation works for the water distribution pipelines and sewers. It is anticipated that some structures may be impacted. Some of the excavation methods that can be considered are as follows.

## Using Excavator, Trencher or Ditch Witch

The use of an excavator, trencher or ditch witch for excavation is one of the options that can be considered during the planning, design and construction phases of the project. The advantages and disadvantages of this method include the following:

<u>Advantages</u>	<u>Disadvantages</u>
Fast operation, hence less time will be taken to	Loss of potential employment opportunities since few
complete the project;	people will be employed as laborers;
Less labor will be involved, hence less labor-related	It requires some space for the machine to operate in
conflicts	some confined areas like markets, which could result in
	destroying some property, hence high compensation
	costs; and
Reduced exposure to injury	It is easy to destroy other utilities like cables

#### Using local labor

<u>Advantag</u>	es					<u>Disadvantages</u>
Creation	of	employment	during	the	construction	It is difficult or impossible in some cases to manually
phase;						excavate hard or rocky soils

Less working space is required so it is easy to work in	It takes longer to undertake the same tasks manually as
confined areas with minimal disturbance;	compared to using a machine
The chance of destroying utilities is minimal.	Construction workers will likely be exposed to health
	and safety hazards like dust

A careful analysis of the two-excavation method recommends that it will be cost-effective to use both methods during the construction phase of this project. The best way to utilize the two methods is to use labor methods in confined areas like markets while the excavator can be used where there is enough working space, hence a minimal chance of destroying properties that can attract compensation and reconstruction. OHS risks related to methane capture will also be taken into consideration identifying the suitable method during the construction phase.

## Alternative to Passing Pipeline through Culvert

The option to pass pipelines through an existing culvert is an attractive option since the breaking of the tarmac and other paved driveways will be avoided hence avoiding inconvenient traffic and associated reconstruction costs. However, it is important to note that culverts are specifically designed to drain a specific discharge so passing a pipe through it will compromise its capacity. Culverts are usually de-silted during the rainy season for the sole reason of maintaining their capacity to drain the water. Ideally it can be the better option to avoid passing the pipeline through the culvert, but it is difficult to do so in practice. In view of this, some considerations must be made during planning, design and construction to address this challenge. These can include the following:

- Consider designing and construction of a wide inlet drain to the culvert so that it can contain the backflow water due to the reduced capacity of the culvert. Otherwise, the backflow water will overtop the road surface hence compromise the strength of the road and safety to the road users when driving along such roads.
- Depending on the topography, consider diverting water to the existing drainage network or constructing drains.
- In situations where there is more than one culvert line close by, consider using a series of smaller pipes to cross the road. For instance, there are three culvert locations, and a 450-mm pipeline is intended to cross the road, consider crossing the 150 mm pipeline at each of the three culvert locations and connect them back to the 450 mm on the other side of the road.

## Alternatives to Pipeline Crossing Side Drains

All the pipelines will be buried underground, and no pipelines will be exposed unless the pipe is crossing the river. This will prevent drainage water overtopping on roads.

## Alternatives to Pipeline Crossing the Roads

In some cases, it will be impossible to avoid breaking the road and pass the pipelines through. In that case, the following will be considered:

- Alternative routes for traffic will be identified and the public should be informed in advance. In addition, appropriate signage must be installed to guide traffic flow.
- In case that there are no alternative traffic routes, the contractor can work on a single lane while traffic is allowed on the other lane. Appropriate signage must be installed to guide traffic flow.
- Another alternative is to consider working during the night since the traffic flow will be low.

#### **Pipe laying Alternatives**

To achieve water transmission and distribution, the following options were considered:

#### Excavation of old pipes and installation of new pipes in the same trench

This will entail excavation of old pipes, some of which were laid over decades, from the existing pipeline network. With rapid infrastructural expansion due to population increase and urbanization, most parts of the existing networks may be covered by housing estates, roads and other developments. Consequently, this alternative will lead to widespread demolition of houses and destruction of other assets. This will inadvertently increase the cost of compensation beyond the reach of the project and may also exacerbate poverty in the city. Furthermore, most parts of the existing pipeline network consist of asbestos pipes, excavation of these pipes will lead to the generation of huge asbestos (hazardous) waste. The complexity of managing a large quantity of asbestos waste may lead to indiscriminate disposal with attendant soil, groundwater and surface water pollution and public health risks.

## Abandoning the existing network and Installation of new pipes in parallel position

This entails laying new pipes parallel to the existing network thereby maintaining the same RoW. This will considerably reduce the cost of the project, as the cost of excavation and removal of pipes in the old network and the cost of managing asbestos waste will be removed. In addition, the potential environmental contamination and public health risks associated with asbestos waste will be avoided. Similarly, this option will ensure that physical/economic displacement and disturbances of households and businesses along the ROW will occur for a shorter period.

#### **Pipe laying Methods**

The following Pipe laying methods were considered for water transmission and distribution:

## **Trenchless Pipe laying**

This entails making a tunnel below the surface and installing pipes without any disruption to the public and as such, the occurrence of compensation will be significantly reduced as most businesses along the RoW will not be affected. However, this method will require expensive boring equipment considering the diameter of transmission and distribution piles. This method cannot be used advantageously if there are large boulders requiring blasting. Another environmental issue is potential contamination of groundwater in areas where the aquifer is close to the surface. There is also the likelihood of the effects of boring through the proposed project locations affecting the foundation of existing structures, especially old structures.

## Pipe laying by Trenching

This involves the installation of pipes by digging trenches along the proposed pipeline route. It is not necessarily the cheapest of all the options and it may have considerable short-term negative socio-economic impacts such as involuntary resettlement, temporary loss of income due to lost man-hours, lack of access to business space (in cases where business premises are affected by the need to resettle). This method will also create local employment opportunities, as trench digging will require the engagement of local labor. It is instructive to note that the trenchless methods will be used at major road and river crossings, where appropriate.

#### Alternatives to Building Materials for Associated Civil and Building Works

This project is expected to involve some civil and building works. These works include thrust blocks, anchor blocks and manholes. Different choices regarding the building materials will have to be made. The choice of building materials is a key determinant of the durability of the built structures, the cost of building the structures and the damage that can be impacted on the environment. Three options, use of burnt bricks, stabilized soil blocks and concrete bricks can be considered as follows:

#### **Use of Burnt Bricks**

The use of burnt bricks is cheap because they are locally made and can be close to the project site. The traditional fried/burnt bricks are made from soil that is mixed with water, dried in the sun there after baking using wood fuel.

#### Disadvantages of Burnt Bricks

Firewood and soil are required to produce bricks. This can lead to the destruction of natural forests and land degradation due to the formation of borrow pits.

#### Stabilized Soil Blocks (SSB)

Stabilized soil blocks are made by mixing soil and cement in appropriate proportions. The process requires skilled labor because the strength of the bricks depends on the mixture and quality of soil used.

#### Disadvantages of SSB

The use of soil for a large project can lead to borrow pits which can lead to ponding and creation of breeding grounds for disease vectors. However, the cost is lower than the cement blocks.

#### Advantages of SSB

- SSB allows users to produce uniform blocks of greater strength than typical fired blocks that provide better thermal insulation.
- The total cost of building a structure with SSB is 20 -30% cheaper than building with fired bricks because far less mortar is required.
- SSB can be made on site, so transportation costs are minimized.
- SSB are environmentally friendly because they are cured in the sun and as such do not contribute to deforestation as compared to fired/burnt bricks; and
- The bricks have an appealing aesthetic with an elegant profile and uniform size that doesn't require plastering.

## **Concrete Blocks**

Concrete blocks are made from a mixture of quarry dust and cement to which water has been added. Like SSB, the mixture is compacted using a manual machine to ensure strength and quality.

## Disadvantages of Concrete Blocks

The bricks are usually expensive due to increased costs of cement.

#### Advantages of Concrete Blocks

- Like SSB, concrete blocks allow users to produce uniform blocks of greater strength.
- Concrete blocks can be made on site, so transportation costs are minimized.
- Because Concrete blocks are cured in the sun, there is no fuel needed thereby helping to curb deforestation as such they are environmentally friendly like SSB.
- Concrete blocks are strong and durable; and
- Concrete blocks are fire resistant.

Based on the analysis and the different building materials, it is recommended that SSB and concrete blocks be considered for construction of the manholes and other building works for the project.

#### **Sanitation Infrastructure**

The Project will design FSTPs and toilet facilities using technologies transforming the sludge into valuable products to reduce O&M costs and environmental footprint

This section examines the different technological alternatives that have to be considered during the planning, design, construction and operation phases of this project. The preferred alternatives should consider design criteria for the FSTPs and toilet facilities to be built-in line with GIIP, including disposal of hazardous waste streams and recycling. Sanitation Intervention Options include:

#### **Sanitation Intervention Options**

Fecal sludge management constitutes five stages: User Interface, Collection/Storage, Transportation, Treatment, and Enduse/Disposal. The intervention intends to provide an onsite sanitation system for the community, specifically at the User -Interface and Collection/ Storage level but in due consideration of the feasibility of the rest of the service chain. The following are the specific focus of the sanitation intervention.

The design concept applies to an onsite sanitation system aiming at meeting the objectives of minimizing O&M cost and ensuring maximum access and usability. The type of sanitation is influenced by factors such as technical (including the informally planned nature of the settlements), environmental, economic and social (user preference). It is a challenge to balance the competing factors mentioned above in selecting the most feasible option. The following three options have been designed, for adaptability to the various factors, for application in specific site conditions.

## Public/ Communal Pour Flush Toilet with Septic Tank

The pour flush toilet (or squatting pan) is designed to prevent users from seeing or smelling the excreta of previous users. Thus, it is generally well accepted. Provided that the water seal is working well, it should be almost no odors, and the toilet is expected to be clean and comfortable to use. Because there are no mechanical parts, Pour-flush toilets are quite robust and rarely require repair. Even though it is a water-based toilet, it requires regular cleaning to maintain hygiene and prevent the buildup of stains. To reduce water requirements for flushing and to prevent clogging, it is recommended that dry cleansing materials and products used for menstrual hygiene be collected separately and not flushed down the toilet.

## Public/Communal VIP Toilet

The Ventilated Improved Pit latrines are designed as an improvement to overcome the disadvantages of the simple pit latrines such as fly and mosquito nuisance and unpleasant odors with the installation of a vent pipe, fly screen and a squatting cover in the VIP latrines. The system is an engineered effective sanitation option that could be emptied mechanically. The advantages of Ventilated Improved Pit Latrine include odor and insect controls; minimized health risk, ease of construction and maintenance including minimum water requirement. The major disadvantages of the VIP latrine option may include potential groundwater pollution, lack of space for relocating the pit in densely populated areas and difficulty of construction in rocky terrain and the high-water table areas.

## Multi-household Tiger Worm Toilet (TWT)

The Tiger Worm Toilets design contain composting worms inside the toilet that digest feces, thereby reducing the accumulation rate and significantly extending the lifetime of the toilet. A worm colony can live inside the toilet indefinitely if the correct environmental conditions are maintained. This would reduce the need to replace filled latrines and can therefore provide a more cost-effective solution in the long term. The design philosophy of the toilet is to balance cost, ease of construction, and user acceptability. The design does not require specialists to implement, and it will use local or readily available construction materials, and local construction methods/capabilities.

## **Biodigester Toilet**

The Biodigester Toilet is referred to as a dry toilet which treats human waste by a biological process in a digesting tank using high graded bacteria (aerobic or anaerobic) further converting it into methane gas, carbon dioxide gas and water. The bacteria work for a lifetime once applied. The zero-waste bio-toilet technology uses psychotropic bacteria like Clostridium and Methanobactin. Waste from toilets is sent to a bio-digester tank for anaerobic digestion, where methane gas is produced which can be used for multiple purposes such as the generation of electricity and firing up of a gas stove to serve shared facilities such as fish drying sheds and community kitchen. Leftover materials such as human nature can be used for farming and gardening. This option is considered feasible.

Designs options for Fecal sludge treatment plants (FSTPs) and public toilets transforming the sludge into biogas and biochar.

## Fecal sludge treatment technologies

The fecal sludge treatment technique typically consists of three stages: primary treatment, where the solid and liquid components of the waste are separated, sludge treatment, and liquid or leachate treatment, which is the last step of treatment and is produced by the first treatment. The primary and sludge treatment methods that are most suitable for the project were identified through a literature analysis, feasibility study, and detailed study report assessment. This section gives an overview of the possible treatment technology alternatives, including their fundamental principles, advantages, and disadvantages from the perspectives of the environment, society, and economy.

## **Technology for Primary Treatment**

Primary treatment is used for solid-liquid separation (dewatering) as well as for the treatment of solid and liquid parts of fecal sludge that is generated from the septic tank, pit latrine, and other onsite sanitation systems. The technologies used for primary treatment are: 1) Drying Bed (UDB), 2) Planted Drying Bed (PDB), and 3) Settling
and Thickening (S&T) Tank.

Unplanted Drying Bed: this is a simple, permeable bed that has numerous drainage layers as demonstrated in Figure 21. When loaded with sludge, it collects leachate that has percolated through the bed and enables the sludge to dry by percolation and evaporation. Between 50 and 80 percent of the volume of the sludge flows out as liquid or evaporates. However, the sludge has not truly stabilized or sanitized. Before the dried sludge may be properly disposed of or utilized as a nutrient-rich soil additive in agriculture, it may require further treatment by composting.



Schematic of an unplanted drying bed

The percolate has to be collected for treatment or regulated reuse since bacteria are still present. Before adding new sludge, unplanted drying beds must be de-sludged. Although frequent desludging necessitates huge surface areas, personnel, or mechanical power, drying beds are very simple to build and maintain

Technology Alternatives	Advantages	Disadvantages
	Relatively low capital costs; low operating costs	High land requirements
Unplanted	Good dewatering efficiency, especially in dry and hot climate	Odors and flies are normally noticeable
Drying Bed	No energy requirements	Labor intensive removal
	Can be built and repaired with locally available materials	Limited stabilization and pathogen reduction
	Simple operation, only infrequent attention required	Leachate requires further treatment
	No experts, but a trained community required	Requires expert design and construction supervision
	Can handle high loading	Requires a large land area
	Better sludge treatment than in unplanted drying beds	Odors and flies may be noticeable
	Easy to operate (no experts, but trained community required	Long storage times
	Can be built and repaired with locally available materials	Labor intensive removal
Planted Drying Bed (PDB)	Relatively low capital costs; low operating costs	Requires expert design and construction supervision
	No electrical energy required	Leachate requires further treatment

#### **Comparative analysis of Primary Treatment technologies**

	Fruit or forage growing in the beds can generate income	Only applicable during dry seasons or needs a roof and contour bund
Settling and Thickening	Thickened sludge is easier to handle and less prone to splashing and spraying	Requires a large land area
(S&T) Tank	Can be built and repaired with locally available materials	Odors and flies are normally noticeable
	Relatively low capital costs; low operating costs	Long storage times
	No electrical energy is required	Requires front-end loader for desludging
		Requires expert design and construction supervision
		Effluent and sludge require further treatment

**Planted Drying Bed (PDB):** A planted drying bed is comparable to an unplanted drying bed as demonstrated in the Figure below, but the presence of plants adds the advantages of increased sludge treatment and transpiration. For the purpose of separating the solid from the liquid part of fecal sludge from latrines, septic tanks, biogas reactors, trickling filters, etc., it is a sealed shallow pond filled with various drainage layers. By using a mix of percolation and evaporation, the sludge is naturally dried. The filters do not need to be desludged after each feeding/drying cycle, which is the main advantage of the planted bed over the unplanted bed.



Schematic of a planted drying bed

The plants and their root systems maintain the porosity of the filter, allowing new sludge to be put directly over the preceding layer. Unlike unplanted drying beds, planted drying beds (also known as humification beds) only require desludging once every five to ten years. The removed sludge provides a nutrient-rich soil amendment that may be utilized right away in farming.

**Settling and Thickening (S&T) Tank:** Settling-cum the thickening tank (ST tank) primarily permits heavier septage particles to sink to the bottom of the tank due to gravity while lighter septage components (fats, oils, grease, and water) remain above. The supernatant is expelled from ST tanks by an outlet on the other side of the intake, which is rectangular in form. To stop the scouring of the settled sludge and the separation of scum, a baffle can be put at the outflow. The tank primarily has two compartments, occasionally three compartments, which can be alternately utilized for loading septage as illustrated in the figure below

The Sierra Leone Water Security and Wash Access Improvement Project- ESMF



Schematic of a Thickening Pond

Each tank is loaded for a minimum of a week, after which the sludge is allowed to thicken and settle, stabilizing the settled solid through the anaerobic sludge digestion process. Then, at regular intervals, thickened sludge is injected into the sludge drying bed. If the sludge is not thick enough, it is often removed by vacuum truck, excavator, or pumping.

#### Decision matrix for primary treatment technology (solid-liquid separation)

The groundwater level, land need, energy requirement, skill required, capital cost (CAPEX), operational cost (OPEX), and sludge treatment technical possibilities were taken into consideration while creating the decision matrix for treatment technology. The selection of fecal sludge treatment technology for the project also depends on the sanitation goals, the minimum/indicative wastewater quality standard values set out within the ESMF/WBG EHSG as well as benefits to the environment and health, and the elimination of open defecation. The decision matrix compares the benefits of various technologies based on factors related to the economy, the environment, and social safety. The UDB and PDB require a lot of area, but no energy is needed. Whereas, the groundwater level should be deep for S&T tanks, although the UDB (Unplanted Drying Bed) and PDB (Planted Drying Bed) do not depend on it for operation

CHARACTERISTICS	UDB	PDB	S&T			
Land requirements	+++	+++	+			
Energy requirements	-	-	+			
CAPEX	+	+	+			
OPEX	+	++	+			
Groundwater level	+	+	++			
Skill requirement	+	++	+			
Discharge standard	++	++	++			
Operational complexity	+	++	++			
Maintenance requirements	+	++	++			
Complexity of installation	+	++	++			
Influence of climate	+++	+++	+			
Sensitivity to the type of FS	+++	+++	+			
Chemical product requirement	-	-	+			
Dewatered sludge removal complexity	++	++	++			
Level of dryness	+++	+++	+			
Odors and vectors	+++	+++				
Noise and vibration	-	-	+			
NB +: low favorability; ++: moderate favorability: +++: high fa	B +: low favorability; ++: moderate favorability: +++: high favorability; -: no need					

#### Main characteristics of the sludge dewatering process

The decision matrix compares the benefits of various technologies based on factors related to the economy, the environment, and social safety. The UDB and PDB require a lot of area, but no UDP is determined to be the most appropriate option based on the decision matrix analysis for WST FSTP as liquid-solid separation. The PDB comes after it. Evaluations conducted with drying beds have shown that they offer effective treatment, simple operation, and maintenance methods, resistance to shock loads, and climate adaptation. Furthermore, sludge drying beds in general are less sophisticated compared to other alternatives, more flexible, easier to operate, and use less energy during operation than mechanical systems, which would make them preferable dewatering options for the proposed project.

#### Technology for sludge treatment and disposal

Sludge that has undergone partial treatment is produced after dewatering. This treated FS cannot be used directly in agriculture since it still contains pathogenic bacteria and parasite eggs. Further treatment is needed to raise the sludge's quality. This is the last step in the sludge treatment process before discharge. 1) Composting, and 2) solar drying are the methods employed for further sludge treatment.

**Co-composting:** Fecal sludge and municipal solid waste co-composting is a biological process that uses microorganisms to break down organic material in an aerobic environment as shown in Figure 24. The processing of source-separated human feces has made extensive use of this technique. Fecal sludge is dewatered, and the partially treated sludge is combined in a ratio of 1:2 or 1:3 with the organic portion of municipal solid waste. The survival of microorganisms throughout the composting process depends on properly regulated moisture and aeration conditions. Municipal solid waste has strong bulking qualities and is rich in organic content, whereas feces have high moisture and nutrition content.



Schematic of the Co-compost

Stabilized organic matter that may be utilized as a soil conditioner is the outcome of co- composting. Furthermore, it includes nutrients that can act as a long-term organic fertilizer and have positive impacts. A high temperature (50-70°C) is maintained during co-composting for 3 weeks to destroy helminths eggs and harmful bacteria. The co-composting procedure takes 10–12 weeks. A comparative analysis of Co-composting is given in the Table below. Only when a source of well-sorted biodegradable solid waste is available the co-composting technique be used.

	Advantages	Disadvantages
	Relatively straightforward to set up and maintain with appropriate training	Requires a large land area (that is well- located)
	Provides a valuable resource that can improve local agriculture and food production	Long storage times
	A high removal of helminths eggs is possible (< 1 viable egg/g TS)	Requires expert design and operation by skilled personnel
Co-compost	Can be built and repaired with locally available materials	Labor intensive
	Low capital and operating costs	Compost is too bulky to be economically Transported over long distances
	No electrical energy required	
Solar Drying	High efficiency for dewatering	Large space requirements
	Low energy requirements	Need mechanical means to turn sludge
	Low investment cost	Ventilate the greenhouses

Comparative analysis of sludge treatment and disposal technologies

**Solar Drying:** Treatment by solar drying is generally done in greenhouse structures with glassy covers, concrete basins, and walls. Sludge is disposed of into the concrete basin and processed for about 10–20 days. Options exist for batch or continuous operation, with devices to control the conditions in the greenhouse (e.g., ventilation, air mixing, temperature). The main factors influencing the evaporation efficiency in these systems are the solar variation, air temperature, and ventilation rate, with the initial dry solid content of the sludge and air mixing also influencing.



Schematic of solar drying

#### Decision matrix for sludge treatment technologies option

Based on the sludge treatment technical options, a decision matrix was prepared for the proposed project with respect to land requirement, energy requirement, skill requirement, CAPEX, OPEX groundwater level, and discharge standard the table below.

Constraint	Co-composting	Solar drying	
Land requirement	+++	+++	
Energy requirement	+	+	
Groundwater level	+	++	
CAPEX	+++	++	
OPEX	+++	++	
Skill requirement	+	++	
Discharge standard	+++	+++	
IB +: low favorability; ++: moderate favorability: +++: high favorability; -: no need			

Decision matrix for sludge treatment technology

Based on the decision matrix, solar drying treatment is the best alternative sludge treatment technique that ESIA teams could provide based on the real conditions in the project in terms of the selected solid-liquid separation treatment plant, current sanitation level, and climate consideration. Co-composting also aids in the inactivation of pathogens and produces a product that is useful as a soil conditioner.

#### Technology for leachate /liquid effluent treatment

To meet the standards for water reuse or release into the environment, the liquid effluents from dewatering technology must first undergo further treatment. This liquid effluent frequently needs extra treatment to fulfill the criteria for discharge quality. Therefore, a low-cost technique should be used (e.g., wetlands, waste stabilization ponds).

**Waste Stabilization Ponds (WSP):** The cheap capital and operating and maintenance expenses make them a viable choice for wastewater treatment in underdeveloped nations. In general, they are made up of a number of ponds with different names depending on what they are used for facultative, maturation, or anaerobic ponds for lowering organic, nutrient, and pathogen loadings through sedimentation and biodegradation under anaerobic, anoxic, and/or aerobic conditions



Typical scheme of a waste stabilization system

The ponds might be sealed with clay, asphalt, or any other impermeable material to stop water penetration. The properties will change depending on the scenario of liquid fecal sludge dewatering and thickening effluent. The effluent properties, which can be very diverse as indicated in Table, will dictate the number of ponds and the type of maintenance necessary.

**Constructed Wetlands:** In the treatment of wastewater, there are three types of constructed wetlands as illustrated in the Figure below. The treated water flows horizontally and above ground in free water surface wetlands (FWSW), whereas it flows horizontally and underground (5 to 15 cm below the surface) in subsurface flow wetlands (SSFW). A planted drying bed is what the vertical flow constructed wetland (VFCW) does. Of course, the direction of the wastewater flow channel is a key distinction between VFCW and FWSW/SSFW wetlands. In contrast to the other two systems, which constantly function under aerobic circumstances, this causes

occasional aerobic-anaerobic situations in the VFCW. The horizontal-flow systems, on the other hand, are more susceptible to clogging, which may be brought on by a high SS content in the liquid to be treated. As a result, they should primarily be employed to remove dissolved pollutants, with the VFCW being more successful at doing so. To properly treat wastewater, a hybrid unit can mix FWSW, SSFW, and VFCW.



Scheme of types of constructed wetland

	Key features	Advantages	Disadvantages
S	Consists of bioreactors in series operating under anaerobic, facultative, and aerobic conditions	Low construction costs	Requires large land area
ation Ponc	BOD removal: 80-95%	Low O&M costs; main O&M requirement includes weeding (to prevent breeding of mosquitoes) and removal of scum	May promote the breeding of insects
Stabiliz	Residence time: 20-60 days	Low energy demand	The odor may be generated in some cases
Waste		Appropriate for treating high strength effluent	Well suited for tropical and subtropical countries
	Organic loading rate: 30- 110 g COD m <sup>-2</sup> d <sup>-1</sup> (typical: 75g BOD m <sup>-2</sup> d <sup>-1</sup> )	Does not require chemicals, energy, or high-tech infrastructure	Requires large land area
lands	Hydraulic residence time: typically, 3-6 days	Suited for combination with aquaculture or sustainable agriculture (irrigation)	Delayed operational status (vegetation establishment needed for peak removal efficiency might take 2-3 years)
Wet		Attractive landscape features, Good control of odor	Pretreatment of the effluent may be required to prevent clogging of the filter bed
		High reduction in BOD, SS and pathogens possible, Low construction, O&M costs	Not very tolerant of cold climates

Key features of treatment options for liquid effluents from dewatering units

An anaerobic baffled reactor (ABR): An anaerobic baffled reactor (ABR) is an enhanced septic tank with a series of baffles that compel grey, black, or industrial effluent to flow under and over the baffles from the entrance to the output. The treatment is improved because of the longer contact time with the active biomass (sludge). Although ABRs are strong and can handle a variety of wastewater types, further treatment is still required before residual sludge and effluents may be adequately recycled or released.



Schematic of the Anaerobic Baffled Reactor

#### Comparative analysis of an anaerobic baffled reactor

Advantages	Disadvantages
Resistant to organic and hydraulic	Long start-up phase
shock loads	
No electrical energy is required	Requires expert design and construction
Low operating costs	Low reduction of pathogens and nutrients
Long service life	Effluent and sludge require further treatment and/or
	appropriate discharge
High reduction of BOD	Needs strategy for fecal sludge management (effluent quality
	rapidly deteriorates if sludge is not removed
	regularly)
Low sludge production: the sludge is	Needs water to flush
stabilized and simple to operate	
Moderate area requirement (can be built	Clear design guidelines are not available yet
underground)	

# 6. Potential Environmental and Social Risk Impacts and Standard Mitigation Measures

This chapter presents a summary of the potential positive and negative impacts and risks as well as mitigation measures for the planning/design and implementation phases, as well as the project components that have potential environmental and social issues.

#### 6.1 Project Activities with Potential Environmental and Social Risks and Impacts

#### 6.1.1 Potential Positive Impacts

The Project is expected to have positive impacts nationwide, contributing to enhanced health conditions of the Project target population. It will contribute towards institutional strengthening and human capital development for service delivery, tools and facilities for water resource management, improvement in urban water and sanitation delivery. It will campaign to eradicate open defecation. The project will support water quality laboratories upgrades, and the installation of hydrological monitoring stations. It will also support GVWC's efforts to reduce Non-Revenue Water (NRW), and expanding water distribution networks, leakage management.

#### 6.1.2 Potential Adverse Risks and Impacts

The Project's Environmental and Social (E&S) risk rating is substantial. The Project aims at strengthening institutions, build capacity, improve urban water supply service, develop sanitation, and prepare comprehensive technical and strategic studies, including a national campaign to make Sierra Leone open defecation free. Potential risks emanate from Project activities in WASH infrastructure, pollution, and disease transmission from sewage handling, and weak institutional capacity to manage these risks. MWRS and partners will establish E&S risk management as per the ESF. It does not involve dam construction, but there will be technical and feasibility studies, detailed designs, and preparation of tender documents for some dams, FSTPs, and improved distribution networks. There are risks associated with sewage handling, civil work, biodiversity impact, and conflicts over barriers in water catchment areas. Construction may cause noise, air, and water pollution, and health and safety risks.

Table 10 presents the potential adverse environmental and social risks and impacts for activities that will have physical footprints.

#### Table 10: Potential Environmental and Social Risks and Impacts and Mitigation Measures during the design, construction and operations phases

S/ n	Potential E&S Risks and Impacts	Recommended Mitigation Measures	Responsibility (Implementation)	Responsibility (Monitoring)
1.	<ul> <li>Construction and equipment of a building to host the Resources Management Authority and Energy (NWRM</li> <li>Rehabilitation and equipment of WASH training center</li> <li>Construction/rehabilitation of Water Quality monitoria</li> <li>Waste Generation: The construction and rehabilitation</li> </ul>	Ministry of Water Resources and Sanitation (MWRS), National Water A) and Water Regulatory Commission (EWRC) s ng laboratory • Waste Management: Implement proper waste management	Contractor	WASHIT in
	activities will generate waste materials such as cement bags, wood, tiles, iron nails, cement blocks, roofing sheets stone chinnings and sand; as well as excavated	practices, including the segregation, collection, and disposal of construction waste in designated areas. Ensure safe disposal of laboratory waste and chemicals		the MWRS WASHIT in
	<ul> <li>sheets, stone chippings and sand; as well as excavated materials and other debris.</li> <li>Air pollution, Noise and Vibration: The use and movement of construction equipment like light duty trucks, drilling machines, backhoes/excavators, and concrete mixers will generate dust and noise.</li> <li>Odor: Construction activities may produce obnoxious odors.</li> <li>Occupational Health and Safety: The construction &amp; operation phases will require a labor force and the use of heavy machinery, posing risks to workers' health and safety.</li> <li>Pollution: There is a risk of pollution to surface and groundwater sources due to mismanagement of WASH facilities, mismanagement of laboratory waste and chemicals during the operational phase.</li> <li>Wastewater, Fecal Sludge, Chemical Disposal: The generation of wastewater, fecal sludge from sanitation facilities and treatment processes and disposal of chemicals from laboratory activities poses environmental risks.</li> <li>Air Quality: Emissions from construction activities and laboratory operations can affect air quality.</li> </ul>	<ul> <li>laboratory waste and chemicals.</li> <li>Dust Control: Watering of construction sites and the use of dust suppressants can help control dust. Additionally, covering trucks transporting construction materials can minimize dust generation.</li> <li>Noise Control: Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance; Limit construction activities to daytime hours and using noise barriers can help mitigate noise pollution.</li> <li>Odor Control: Proper management of waste and construction materials can help reduce unpleasant odors.</li> <li>Occupational Health and Safety: Ensure adequate protection for workers, including the use of personal protective equipment (PPE), and compliance with occupational safety regulations. Regular safety training and monitoring should be conducted.</li> <li>Pollution Control: Implement measures to prevent pollution of surface and groundwater sources, including proper management of wastewater, chemicals and laboratory Waste Management: Implement measures to manage and treat wastewater and chemicals generated from laboratory activities. Ensure proper storage and disposal of chemicals. Ensure proper management of laboratory waste and chemicals to prevent pollution.</li> </ul>		WASHIT in the MWRS

	<ul> <li>Air Quality Management: Implement measures to control emissions from construction activities and laboratory operations. Ensure compliance with air quality standards.</li> </ul>	
<ul> <li>Restriction of Access: Construction sites may restrict mobility and access to the premises.</li> <li>Obstruction of Access: The construction activities may obstruct access to the school and health facility compounds.</li> <li>Labor Influx: The project may attract labor from outside the local community, potentially leading to social conflicts, GBV risks and other issues such as strain on existing services.</li> <li>Child Labor: There is a risk of child labor in the project works</li> <li>Community Health and Safety: There are risks to community health and safety during the construction period and from the operation of WASH facilities &amp; laboratory operation.</li> <li>Exclusion of Vulnerable Groups and Elite Capture: There is a risk of excluding vulnerable and marginalized individuals/groups, including those with disabilities.</li> <li>Gender-Based Violence (GBV): The influx of contractor workers and the provision of social support programs can be associated with increases in GBV.</li> <li>Spread of Diseases: The influx of contractor workers may lead to the spread of sexually transmitted diseases (like HIV/AIDS) and unwanted pregnancies.</li> <li>Social Conflicts: There may be social conflicts in some areas that could hinder the implementation of the Subcomponent activities.</li> </ul>	<ul> <li>compliance with air quality standards.</li> <li>Mobility Management: Implementing traffic management plans and providing alternative routes can help minimize mobility restrictions.</li> <li>Access Management: Ensuring that construction activities do not obstruct access to essential facilities by coordinating facility management and scheduling construction activities accordingly.</li> <li>Labor Management: Engaging local labor as much as possible and implementing a Code of Conduct for workers to regulate their behavior and minimize risks associated with labor influx. LMP will be developed and implemented.</li> <li>Age verification criteria should be enforced to prevent child labor.</li> <li>Rainwater harvesting structures will be installed for toilets and watering green areas.</li> <li>Conflict Management: Engage local authorities and communities in the implementation of the project to manage and mitigate social conflicts.</li> <li>Safety Measures: Ensure that sanitation facilities and water infrastructure are well-lit and located in safe areas. Implement safety measures to protect users.</li> <li>Dust and Noise Control: Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance; Limit construction activities to daytime hours and using noise barriers can help mitigate noise pollution.</li> <li>Suitable design and standards for WASH facilities and infrastructure will address the needs of girls, women, boys, and people with disabilities.</li> <li>The universal access concept will be considered in the provision of safe and clean water access at schools, health facilities, and community level</li> </ul>	
	<ul> <li>Community Health and Safety: Implement traffic management plans and provide alternative routes to minimize risks to the community. Ensure proper management of WASH facilities to prevent pollution.</li> </ul>	

		<ul> <li>Ensure that vulnerable and marginalized individuals/groups are included in the project activities. Implement measures to prevent elite capture and ensure equitable access to benefits.</li> <li>GBV Prevention: Develop and implement a GBV Prevention and Response Action Plan. Establish Codes of Conduct for all workers involved in the project and implement grievance mechanisms that are accessible to survivors of GBV. The project will develop and implement LMP.</li> <li>Disease Prevention: Implement measures to prevent the spread of diseases including health screenings and awareness programs for</li> </ul>		
		the contractor workers and community members.		
		<ul> <li>No additional land is required for the construction of the building to hold MWRS, NWRMA and EWRC.</li> </ul>		
2.	Construction of billboards, catchment protective construction and operational phase)	barriers, around the Western Area National Park (During the		
	<ul> <li>Soil Erosion and Sedimentation: Construction activities may lead to soil erosion and sedimentation, affecting water quality and aquatic habitats.</li> <li>Biodiversity Loss: The construction activities may lead to the loss of vegetation and disturbance to wildlife habitats.</li> <li>Flooding and Landslides: Improper construction and management of protective barriers may increase the risk of flooding and landslides.</li> <li>Pollution: There is a risk of pollution to the surface and groundwater sources due to mismanagement of construction materials and waste</li> <li>Waste Generation: The construction activities will generate construction waste, including excavated materials and other debris.</li> <li>Occupational Health and Safety: Workers may face health and safety risks during both the construction and operational phases.</li> </ul>	<ul> <li>Soil Erosion and Sedimentation Control: Implement erosion and sediment control measures, such as silt fences, sediment basins, and re-vegetation of disturbed areas.</li> <li>Biodiversity Management: Minimize vegetation clearance and disturbance to wildlife habitats. Implement measures to restore and enhance habitats where possible.</li> <li>Flood and Landslide Risk Management: Design and construct protective barriers to withstand extreme weather events. Implement measures to manage and mitigate the risk of flooding and landslides.</li> <li>Pollution Control: Implement measures to prevent pollution of surface and groundwater sources, including proper management of wastewater and chemicals. Ensure compliance with environmental regulations.</li> <li>Waste Management: Implement proper waste management practices, including the segregation, collection, and disposal of construction waste in designated areas. Ensure safe disposal of chemicals.</li> <li>Occupational Health and Safety: Ensure adequate protection for workers, including the use of personal protective equipment (PPE), and compliance with occupational safety regulations. Regular safety training and monitoring should be conducted.</li> </ul>	Contractor	

	<ul> <li>Community Health and Safety: There are risks to community health and safety during the construction period and from the operation of the protective barriers and monitoring systems.</li> <li>Access restriction on communities using resources from the protected area (e.g. firewood)</li> <li>Dust, Noise, and Vibration: The movement of construction vehicles and machinery will increase levels of dust, noise, and vibration.</li> <li>Child Labor: There is a risk of child labor in the project works</li> <li>Exclusion of Vulnerable Groups: There is a risk of excluding vulnerable and marginalized individuals/groups, including those with disabilities.</li> <li>Social Conflicts: There may be social conflicts in some areas that could hinder the implementation of the Subcomponent activities.</li> </ul>	<ul> <li>Conduct Social Assessment, and employ Process Framework (PF) methodology as stipulated in the RF.</li> <li>Dust and Noise Control: Watering of construction sites and the use of dust suppressants can help control dust; Plan activities in consultation with communities so that noisiest activities are undertaken during periods that will result in least disturbance; Limit construction activities to daytime hours and using noise barriers can help mitigate noise pollution.</li> <li>Community Health and Safety: Implement traffic management plans and provide alternative routes to minimize risks to the community. Ensure proper management of construction waste and chemicals to prevent pollution.</li> <li>Ensure that vulnerable and marginalized individuals/groups are included in the project activities. Implement measures to prevent elite capture and ensure equitable access to benefits.</li> <li>The project will develop and implement LMP.</li> <li>Disease Prevention: Implement measures to prevent the spread of diseases, including health screenings and awareness programs for the contractor workers and community members.</li> <li>Conflict Management: Engage local authorities and communities in the implementation of the project to manage and mitigate social conflicts.</li> </ul>		
3.	Selected no-regret investments to improve network perf GVWC water distribution network.	ormance and resilience during the dry season in selected areas of the		
	<ul> <li>Water Supply Disruption: The installation of meters and network extensions may temporarily disrupt water supply to the community.</li> <li>Pollution: There is a risk of pollution to surface and groundwater sources due to mismanagement of construction waste and chemicals.</li> <li>Soil Erosion and Sedimentation: Construction activities may lead to soil erosion and sedimentation, affecting water quality and aquatic habitats.</li> </ul>	<ul> <li>Water Supply Management: Plan and coordinate the installation of meters and network extensions to minimize disruption to water supply. Provide advance notice to affected communities and ensure alternative water supply arrangements.</li> <li>Pollution Control: Implement measures to prevent pollution of surface and groundwater sources, including proper management of wastewater and chemicals. Ensure compliance with environmental regulations.</li> <li>Soil Erosion and Sedimentation Control: Implement erosion and sediment control measures, such as silt fences, sediment basins, and re-vegetation of disturbed areas.</li> </ul>	Contractor	WASHIT in the MWRS

4.	<ul> <li>Biodiversity Loss: The construction activities may lead to the loss of vegetation and disturbance to wildlife habitats.</li> <li>Waste Generation: The construction activities will generate construction waste, including excavated materials and other debris.</li> <li>Occupational Health and Safety: Workers may face health and safety risks during both the construction and operational phases.</li> <li>Dust, Noise, and Vibration: The movement of construction vehicles and machinery will increase levels of dust, noise, and vibration.</li> <li>Risks of Asbestos Containing Materials in pipes during the construction phase.</li> <li>Community Health and Safety: There are risks to community health and safety during the construction period and from the operation of the distribution network extensions and meters.</li> <li>&gt; Upgrading of the existing Kingtom FSTP infrastructure &gt; Design, build and operate new Fecal Sludge Treatment</li> </ul>	<ul> <li>Biodiversity Management: Minimize vegetation clearance and disturbance to wildlife habitats. Implement measures to restore and enhance habitats where possible.</li> <li>Waste Management: Implement proper waste management practices, including the segregation, collection, and disposal of construction waste in designated areas. Ensure safe disposal of chemicals.</li> <li>Occupational Health and Safety: Ensure adequate protection for workers, including the use of personal protective equipment (PPE), and compliance with occupational safety regulations. Regular safety training and monitoring should be conducted.</li> <li>Dust and Noise Control: Watering of construction sites and the use of dust suppressants can help control dust. Limiting construction activities to daytime hours and using noise barriers can help mitigate noise pollution.</li> <li>Community Health and Safety: Implement traffic management plans and provide alternative routes to minimize risks to the community. Ensure proper management of construction waste and chemicals to prevent pollution.</li> <li>Asbestos Management</li> <li>If asbestos or asbestos containing materials (ACM) are found at a construction site, they should be clearly marked as hazardous waste.</li> <li>The asbestos should be appropriately contained and sealed to minimize exposure.</li> <li>Prior to removal, if removal is necessary, ACM should be treated with a wetting agent to minimize asbestos dust.</li> <li>If ACM is to be stored temporarily, it should be securely placed inside closed containers and clearly labeled.</li> <li>Removed ACM must not be reused.</li> </ul>		
	<ul> <li>(During the construction and operational phase)</li> <li>Water and Air Pollution: Potential contamination of water sources and air quality deterioration due to the release of untreated or inadequately treated sludge.</li> <li>Soil Fresion: Land clearing and construction activities.</li> </ul>	<ul> <li>Water and Air Quality Management: Implementing proper treatment processes to ensure that effluents meet environmental standards before discharge. Regular monitoring of water and air quality.</li> </ul>	Contractor	WASHIT in the MWRS
	<ul> <li>Soil Erosion: Land clearing and construction activities may lead to soil erosion.</li> </ul>	quality.		

	<ul> <li>Waste Handling: Improper handling and disposal of solid and liquid waste can lead to environmental degradation.</li> <li>Dust Pollution: Construction activities may generate dust, affecting air quality.</li> <li>Occupational Health and Safety (OHS): Risks to workers' health and safety during construction and Workers involved in the collection, transportation, and treatment of fecal sludge may face health risks.</li> <li>Offensive Odor: The release of hydrogen sulfide during anaerobic digestion can cause offensive odors around the treatment plant</li> <li>Groundwater Pollution: There is a risk of groundwater pollution due to wastewater infiltration through permeable soils</li> <li>Health Impact from Untreated Sludge: If the sludge is not adequately treated, pathogenic organisms can infect the population, leading to health issues</li> <li>Community Health and Safety: The community may be exposed to health issues surrounding the collection, transportation, and treatment of fecal sludge and flooding.</li> <li>Project activities may result in temporary and/or permanent displacement impacts (physical/ economic).</li> </ul>	<ul> <li>Erosion Control: Using erosion control measures such as silt fences, sediment basins, and re-vegetation of cleared areas.</li> <li>Waste Management: Developing and implementing a waste management plan to ensure proper handling, storage, and disposal of waste materials.</li> <li>Dust Control: Implementing dust suppression measures such as water spraying and covering of construction materials.</li> <li>OHS Measures: Providing personal protective equipment (PPE) to workers, conducting regular safety training, and ensuring compliance with safety protocols.</li> <li>Concrete Lining: Construct the FSTP foundation with concrete lining to prevent leakage of wastewater into the groundwater system</li> <li>Proper Treatment: Ensure proper treatment and disposal of fecal sludge to prevent contamination of water sources</li> <li>Odor Control: Implement measures to control and manage odors at the treatment plant.</li> <li>When specific physical footprints are known, for impacts associated with land acquisition, restriction on land use and involuntary resettlement, RP will be developed, implemented and monitored as per the principles stated in the RF and ESS5.</li> </ul>		
5.	Design and build 200 climate resilience sanitation option schools, hospitals, marketplaces, public parks, fish landi	ns such as the biogas toilet - infrastructures in public spaces including ng sites, touristic and recreational areas.		
	<ul> <li>Water and Air Pollution: There is a risk of water and air pollution from construction activities.</li> <li>Occupational Health and Safety (OHS) Risks: Workers may face various health and safety risks, including injuries and accidents due to inadequate use of personal protective equipment (PPE) and slip and fall incidents</li> <li>Dust and Noise Pollution: Construction activities can generate dust and noise, affecting the local environment and nearby communities</li> <li>Soil Erosion: Land clearing and construction activities can lead to soil erosion</li> </ul>	<ul> <li>A toilet should be at least 20 meters from water sources (well, spring, river).</li> <li>Health and Safety Measures: Implement safety measures for workers, including the use of PPE, safety training, and regular medical check-ups</li> <li>Dust and Noise Control: Use modern equipment to minimize dust generation and noise emissions. Implement dust suppression measures such as water spraying</li> <li>Waste Management Plan: Develop a waste management plan before starting construction activities to manage construction waste and prevent pollution</li> </ul>	Contractor	WASHIT in the MWRS

	<ul> <li>Traffic Disruptions: Increased traffic flow during construction can lead to traffic disruptions and accidents, especially in densely populated areas</li> <li>Groundwater Pollution: There is a risk of groundwater pollution due to wastewater infiltration through permeable soils</li> <li>Health Risks: Improper management of biogas and sludge can lead to health risks for users and nearby communities</li> <li>Flooding and Stagnation: Poor drainage around the toilet facilities can lead to flooding and stagnation of water, creating unhygienic conditions and breeding grounds for mosquitoes</li> <li>Offensive Odor: The release of biogas and other by-products can cause offensive odors around the toilet facilities.</li> <li>Child Labor: There is a risk of child labor on project works.</li> <li>Community Health and Safety: The community may be exposed to health issues surrounding the collection, transportation, and treatment of fecal sludge, as well as risks from accidental leakage and flooding.</li> <li>Project activities may result in temporary and/or permanent displacement impacts (physical/ economic).</li> </ul>	<ul> <li>Traffic Management Plan: Develop a Traffic Management Plan to manage traffic diversions and ensure safety</li> <li>Concrete Lining: Construct the toilet foundation with concrete lining to prevent leakage of wastewater into the groundwater system</li> <li>Proper Treatment: Ensure proper treatment and disposal of fecal sludge and biogas to prevent contamination of water sources and reduce health risks</li> <li>Drainage Systems: Construct proper drainage systems around the toilet facilities to prevent flooding and stagnation of water.</li> <li>Odor Control: Implement measures to control and manage odors at the toilet facilities, such as proper ventilation and regular maintenance.</li> <li>Child Labor Prevention: Ensure that no child labor is used in any construction or operational activities. Regular monitoring and enforcement of labor laws. Age verification criteria should be enforced to prevent child labor.</li> <li>When specific physical footprints are known, for impacts associated with land acquisition, restriction on land use and involuntary resettlement, RP will be developed, implemented and monitored as per the principles stated in the RF and ESS5.</li> </ul>		
6.	Procurement & Installation of 42,000 Smart Domestic I	Meters		
	> Procurement and supply of Leakage Monitoring Vans 8	trucks		
	Procurement & Delivery of 15 water Bowsers to supply	657 water kiosks to low-income communities in the Western Area		
	<ul> <li>Occupational Health and Safety (OHS) Risks: Workers may face various health and safety risks, including injuries and accidents during the installation process.</li> <li>Traffic Disruptions: Increased traffic flow due to the movement of vans and trucks can lead to traffic disruptions and accidents, especially in densely populated areas.</li> <li>Noise Pollution: The operation of vans and trucks may generate noise, affecting the local environment and nearby communities.</li> </ul>	<ul> <li>Health and Safety Measures: Implement safety measures for workers, including the use of PPE, safety training, and regular medical check-ups.</li> <li>Traffic Disruptions: Increased traffic flow due to the movement of vans and trucks can lead to traffic disruptions and accidents, especially in densely populated areas.</li> <li>Noise Pollution: The operation of vans and trucks may generate noise, affecting the local environment and nearby communities.</li> <li>Water Quality Management: Regularly inspect and maintain water bowsers to prevent leaks and contamination.</li> </ul>	Contractor	WASHIT in the MWRS

	<ul> <li>Water Pollution: There is a risk of water contamination if the bowsers are not properly maintained or if there are leaks during transportation</li> <li>Traffic Disruptions: Increased traffic flow due to the movement of water bowers can lead to traffic disruptions and accidents.</li> </ul>	<ul> <li>Traffic Management Plan: Develop a Traffic Management Plan to manage traffic diversions and ensure safety.</li> </ul>		
7.	The development of City-Wide Inclusive Sanitation (CWI	IS) plan for Freetown and WARD C		
	Non-inclusion of environmental and social structural and nonstructural sustainability measures	<ul> <li>Identify feasible and cost-effective measures to reduce potentially significant adverse environmental and social impacts.</li> <li>Provide technical details for each mitigation measure, including the type of risks and impact it relates to and the conditions under which it is required</li> <li>Establish procedures to monitor and measure the effectiveness of the E&amp;S management program and compliance with Sierra Leone legal and contractual obligations and regulatory requirements.</li> </ul>	Consultant	WASHIT in the MWRS
8.	<ul> <li>Feasibility studies, detailed design and preparation of delivery improvement for selected dams and related tr (During the design phase)</li> </ul>	tender documents for priority investments in urban water services reatment, transmission & distribution infrastructure.		
	<ul> <li>Habitat Conversion and Degradation:</li> <li>The project may lead to the conversion or degradation of critical natural habitats.</li> <li>There is a risk of significant environmental impacts if natural habitats are not correctly identified and managed.</li> <li>Safety Concerns:</li> <li>Safety measures need to be comprehensive, especially for dams over 15 meters in height or those in special conditions (e.g., flood-prone, seismic areas).</li> <li>Potential risks during the design, construction, and operational phases of the dams.</li> <li>Flood Management and Water Quality:</li> <li>Water quality and availability may be affected during and after the construction of the dams and water treatment plants.</li> </ul>	<ul> <li>Conduct comprehensive environmental and social impact assessments in compliance with the World Bank ESF</li> <li>Ensure that natural habitats are correctly identified, and alternative analyses are conducted to minimize significant conversions. Safety Measures:</li> <li>Implement safety measures from design to operation for the dams and associated work.</li> <li>Engage independent experts to review the design, construction, and operational phases of the dams. Monitoring and Management:</li> <li>Implement a robust project management and administration framework to monitor the implementation of the project and the outputs of the services.</li> <li>Ensure continuous monitoring and evaluation of environmental and social impacts throughout the project lifecycle.</li> </ul>	Consultant	WASHIT in the MWRS

	Social and Resettlement Impacts: The project may	•When specific physical footprints are known, for impacts		
	involve social and resettlement impacts, including	associated with land acquisition, restriction on land use and		
	displacement of communities and changes in land use.	involuntary resettlement, RP will be developed, implemented		
		and monitored as per the principles stated in the RF and ESS5.		
9.	Preparation of a water resources masterplan			
	(During the design phase)			
	Non-inclusion of environmental and social structural and	•Identify feasible and cost-effective measures to reduce potentially	Consultant	WASHIT in
	nonstructural sustainability measures	significant adverse environmental and social impacts.		the MWRS
		• Provide technical details for each mitigation measure, including the		
		type of risks and impact it relates to and the conditions under which		
		it is required		
		•Establish procedures to monitor and measure the effectiveness of		
		the E&S management program and compliance with Sierra Leone		
		legal and contractual obligations and regulatory requirements.		
10.	Review and formulation of exciting WASH Policy and reg	ulations including the private sector involvement;		
	(During project implementation)			
	•Existing WASH policies and regulations may be	• Ensure WASH policies and regulations incorporate robust	Consultant	WASHIT in the
	outdated or insufficient to address current and future	sustainability principles.		MWRS
	sanitation challenges.	Ensure robust monitoring and evaluation systems to track the		
		performance of sanitation services and ensure compliance with		
		environmental and social standards.		
11.	<b>Consultancy Services for Organizational Capacity Assess</b>	nent and Institutional Development Plan for the sector		
	(During project implementation)			
	•Institutional capacity to implement and manage	•Provide capacity building to relevant agencies to enhance their E&S	Consultant	WASHIT in the
	sanitation services including ESF may be lacking.	capacity to manage sanitation services consistent with the ESCP.		MWRS

#### 6.2 Special Assistance for Vulnerable PAPs

Disproportionately impacted groups who mostly vulnerable due to their distinct livelihood strategies, ways of living and other socio-economic dynamics. For these individuals/ groups, in addition to resettlement, compensation and livelihood restoration programs, additional mitigation mechanisms are required. i.e. assistance in the compensation payment procedure, assistance in moving properties and identifying the resettlement plot (as needed), assistance in building activities, assistance during the post-resettlement period and health care if required, particularlyduring the moving and transition periods. The Project will consider, but not limited to the following mechanisms.

•

- The continuous awareness creation efforts of the project will ensure constant information flow especially to vulnerable groups including poor women, elderly and persons with disabilities. Hold separate focused group discussions (FGDs) with women and other vulnerable groups identified by the E&S assessment.
- Promote transparent procedures and avoid discrimination in recruitment process, ensure terms
  of employment and working conditions to include protection for vulnerable workers (e.g. women
  and persons with disabilities).
- Contractors to adapt the Labor Management Procedures to ensure availability of clear recruitment protocols, written employment contracts with clear working conditions, protection of vulnerable workers, prohibit the use of forced and child labor, availability of Grievance Mechanism for workers complaints etc.
- Engage CBOs and NGOs who are active in the Project implementation areas to help provide outreach programs and tailored programs to vulnerable groups and individuals.
- A systematic and functional GRM should be adopted to address the concerns of aggrieved parties (PAPs, vulnerable groups including women, gender-sensitive issues, workplace concerns and community concerns).

•

Moreover, the project will work on suitable design and standards for WASH facilities and infrastructure will address the needs of girls, women, boys, and people with disabilities (such as brails, radio broadcasts, using sign languages, etc.).

By enforcing gender sensitive infrastructure, SL Water Security and WASH Access Improvement Project will emphasize gender and social inclusion, recognizing the disproportionate impact of inadequate WASH services on women, girls and disability conditions.

### 7. Environmental and Social Monitoring

The aim of monitoring is to determine whether interventions have been effective in dealing with the negative impacts, whether further interventions are needed, or monitoring is to be extended in some areas. Monitoring indicators will be very much dependent on specific project contexts. The WASHIT within the MWRS, designated Environmental and Social Specialists will be responsible for overall monitoring and reporting on compliance with the ESMF ensuring that the subproject is screened, their environmental and social instruments are prepared, cleared and disclosed prior to approval. The WASHIT within the Ministry, will also ensure that contractors executing the work are implementing the specific ESMP for the subprojects that require it and submit reports on ESMP implementation as required.

The WASHIT within the Ministry will keep records on complaints received, resolved, accidents, and other environmentally or socially related topics of relevance and importance for this project. This data will be reflected in biannual reports on safeguard compliance to be furnished to the Bank. The Bank will conduct periodic audits of the projects and access documented information.

As per the commitment specified in the ESCP, any project-related fatalities or serious injuries will be reported to the World Bank within 48 hours after learning of the incident and in accordance with ESCP obligations and World Bank procedures. All employers under this project are therefore required to maintain insurance for workers and third-party liability. The monitoring indicators with verified indicators and responsible institutions are as in Table 6.

The actual impacts caused by project implementation should be closely monitored during the construction and operation of the project to examine the effectiveness of the mitigation measures. The goals of monitoring are to measure the success rate of the project, determine whether interventions have resulted in dealing with negative impacts, and whether further interventions are needed, or monitoring is to be extended in some areas. Table 11 describes the Monitoring and Evaluation Framework for the ESMF and the Environmental and Social monitoring and reporting requirements in table 12. *Table 11: Monitoring and Evaluation Framework for the ESMF* 

S/N	PHASE	INSTITUTION RESPONSIBLE	PERFORMANCE INDICATORS	PERIOD TO BE CONDUCTED
1	PREPARATION/	WASHIT within the	Number/ % of Staff/ Consultants/	Before
	PRE-	Ministry	Contractors/ and Engineers who received	commencement
	CONSTRUCTION	/independent	training on ESMF, ESMP, environmental, and	of any civil works
	PHASE	consultant	social accountability training,	and contractor
			Number of Subprojects with environmental	mobilization to
		Monitoring by	and social screening checklist filled, reviewed	site
		government entities	and approved ESMP, and other site-specific	
		(EPA, NWRMA and	plans including ESIA, RP, etc prepared.	
		NPAA)	Establishment and functionality of GRM.	
2	CONSTRUCTION	WASHIT within the	I Number/ % of Staff/ Consultants/	During civil works
	PHASE	Ministry Contractor/	Contractors/ Engineers/ community	implementation
		Independent	representatives who received training on	
		Consultant	ESMP, environmental, social accountability	
			trai <b>g</b> ggg Grievance redress mechanism	
			operational and effective (no. of grievances	

S/N	PHASE	INSTITUTION RESPONSIBLE	PERFORMANCE INDICATORS	PERIOD TO BE CONDUCTED
			logged, revolved, pended, etc.) GRC established and operational. Contractor's staff sensitized Gender base violence (GBV). # of Contractor staff who have signed CoC CESMP implemented Stakeholder consultations undertaken with project affected people. Standard operating procedures for best environmental practices	
			established Waste management plan developed and implemented Emergency Response Plan prepared and	
			implemented.	
3	OPERATION AND MAINTENANCE PHASE	Contractor The implementing agencies involved in the Project (MWRS, GVWC, SALWACO, EWRC, NWRMA, FCC, and WARDC)	Are environmental and social monitoring mechanisms in place Is disaster and emergency mechanism in place? Training provided to E&S staff of IAs on ESMP Traffic management plan implemented # of cases of traffic accidents ESMP measures being implemented. No. of complaints recorded, resolved, pending, from communities	Operational and Maintenance phase to project closure
4	DECOMMISIONING PHASE	The implementing agencies involved in the Project (MWRS, GVWC, SALWACO, EWRC, NWRMA, FCC, and WARDC), Contractor	Decommissioning plan been conducted. Disaster and emergency mechanism in place Standard operating procedures for best environmental practices established. # of complaints registered, resolved, referred, etc. from communities.	During decommissioning of the project

#### 7.1 Environmental and Social Monitoring Reporting Arrangements

The Environmental and Social Specialists of the MWRS-WASHIT are responsible for conducting E&S monitoring of E&S implementation by construction contractors, including consultations and feedback from relevant stakeholders involved as per principles and requirements prescribed in the project's ESMF including RF, LMP and SEP. Regular E&S monitoring and reporting requirements are summarized in Table 12.

Table 12: Environmental and Social Monitoring and Reporting Requirements

No	Report Prepared by	Submitted to	Frequency of Reporting
1	Contractors	MWRS-WASHIT	Once before construction commences and monthly thereafter

2	Supervision consultant	MWRS-WASHIT	Monthly, as soon as possible, as required
3	Environmental and Social Officers	MWRS-WASHIT	Monthly, as soon as possible, as required
4	MWRS-WASHIT	WB	Quarterly reports, in line with the ESCP including: (i) Status of preparation and implementation of E&S documents required under the ESCP. (ii) Summary of stakeholder engagement activities carried out as per the Stakeholder Engagement Plan (iii) Complaints submitted to the grievance mechanism(s), the grievance log, and progress made in resolving them (iv)E&S performance of contractors and subcontractors as reported through [monthly] contractors' and supervision firms' reports. Number and status of resolution of incidents and accidents Bi-annually for M&E report

In addition to the regular reporting schedule, in line with the ESCP, reporting arrangements are needed for serious incidents, causing death, injury, or other major problems. MWRS-WASHIT must notify the World Bank within 48 hours of learning about the incident, including the complete investigation form, complete Root Cause Analysis (proportionate to the severity of the incident), and undertake immediate mitigation measures as well as medium- and longer-term corrective actions to prevent the incident from reoccurring.

# 8. Environmental and Social Management Procedures and Implementation Arrangements

#### 8.1 Environmental and Social Risk Management Procedures

To ensure environmental and social impacts and risks of sub-projects/activities under Components 2 and 3 are properly screened and identified, risks are managed and reported on, in line with ESS1 and national laws, the following actions will be undertaken. These requirements have been reflected in WASH Project Implementation Team (WASHIT) within the Ministry Environmental and Social Commitment Plan (ESCP) which were prepared and disclosed.

The environmental and social risk management procedures will be implemented through the Project's subproject selection process. In summary, the procedures aim to do the following:

#### 8.2 Subproject Assessment and Analysis – E&S Screening

Screening is a key step for an initial identification of environmental and social (ES) risks and impacts of a project and is carried out at an early stage of any Environmental and Social Assessment (ESA) process. As a first step, all proposed activities should be screened to ensure that they are within the project boundaries. For all activities, WASHIT should use the Screening Form in Annex 1 to identify and assess potential environmental and social risks and impacts and identify the appropriate mitigation measures for the subproject. The Screening Form lists the various mitigation measures and plans that may be relevant for the specific activities (such as the Environmental and Social Codes of Practice, the Environmental and Social Management Plan, the Labor Management Procedures, Chance Find Procedures, etc.) In addition, the WASHIT should identify the documentation, permits, and clearances required under the government's Environmental Regulation of the Environment Protection Agency Sierra Leone (EPASL).

#### 8.3 Subproject Formulation and Planning – E&S Planning

Based on the process above and the Screening Form (Annex 1), the WASHIT will adopt the necessary environmental and social management measures already included in the Annexes of this ESMF (such as the ESCOPs to manage small scale infrastructure investments and will be a mandatory part of construction contract or bidding documents (Appendix 3), , etc.) or develop relevant site-specific environmental and social management plans.

WASHIT will prepare the ESMPs, and other applicable documents as needed. The WASHIT will provide approval and compile ESMPs and other applicable forms. The contents of the ESMPs will be shared with relevant stakeholders in an accessible manner, and consultations will be held with the affected communities on the environmental and social risks and mitigation measures. If certain subprojects or contracts are being initiated at the same time or within a certain location, an overall ESMP covering multiple subprojects or contracts can be prepared. Some moderate risk subprojects may also benefit from the preparation of a site-specific environmental and social assessment prior to the preparation of an ESMP.

MWRS-WASHIT will also complete the documentation, permits and clearances required under the government's Environmental Regulation before any project activities begin. Staff who will be working on the various subproject activities should be trained in the environmental and social management plans relevant to the activities they work on. The MWRS-WASHIT should provide such training for field staff.

MWRS-WASHIT should also ensure that all selected contractors, subcontractors, and vendors understand and incorporate environmental and social mitigation measures relevant to them as standard operating procedures for civil works. The MWRS-WASHIT should provide training to selected contractors to ensure that they understand and incorporate environmental and social mitigation measures; and plan for cascading training to be delivered by contractors to subcontractors and vendors. The MWRS-WASHIT should further ensure that the entities or communities responsible for ongoing operation and maintenance of the investment have received training on operations stage environmental and social management measures as applicable.

#### 8.3.1 Environmental and Social Instruments

ESS1 provides structured processes or procedures for project categorization, assessing and evaluating project E&S risks and impacts as well as management of same (mitigation hierarchy). This standard also sets out borrower's requirements including the preparation of various instruments such as ESMFs, ESIAs, ESMPs, ESCP, RF, and RP, as well as information disclosure. The standard also lays out project E&S monitoring and reporting requirements. ESS1 establishes the applicability of the other ESS. It establishes the basis for categorizing projects based on the borrower's capacity to manage and monitor E&S risks/impacts as well as the implementation of mitigation measures, sociopolitical context, scale of the undertaken as well as spatial extent, and significance of anticipated impacts/risks.

MWRS-WASHIT shall carry out an appropriate ESA to assess the risks and impacts of the project activities throughout the project life cycle. The ESA shall be proportionate to the nature and significance of such risks and impacts. It will be conducted pursuant to EPA Acts 2008/2010 and applicable national requirements and shall meet the ESS requirements as stated in the ESF. Sample TORs for the preparation of an ESIA and ESMP are contained in Appendix 2 and 4 respectively.

#### 8.4 Implementation and Monitoring – E&S Implementation

During implementation, the MWRS-WASHIT will conduct regular monitoring visits. The MWRS-WASHIT working to implement the project will ensure that monitoring practices include the environmental and social risks identified in the ESMF and will monitor the implementation of E&S risk management mitigation plans as part of regular project monitoring.

At a minimum, the reporting will include (i) the overall implementation of E&S risk management instruments and measures, (ii) any environmental or social issues arising as a result of project activities and how these issues will be remedied or mitigated, including timelines, (iii) Occupational Health and Safety performance (including incidents and accidents), (iv) community health and safety, (v) stakeholder engagement updates, in line with the SEP, (vi) public notification and communications, (vii) progress on the implementation and completion of project works, and (viii) summary of grievances/beneficiary feedback received, actions taken, and complaints closed out, in line with the SEP. Reports from the local council levels will be submitted to the MWRS-WASHIT at the national level, where they will be aggregated and submitted to the World Bank on a quarterly basis.

Throughout the Project implementation stage, the MWRS-WASHIT will continue to provide training and awareness raising to relevant stakeholders, such as staff, selected contractors, and communities, to support the implementation of the environmental and social risk management mitigation measures.

MWRS-WASHIT will also track grievances/beneficiery feedback (in line with the SEP) during project implementation to use as a monitoring tool for implementation of project activities and environmental and social mitigation measures.

If MWRS-WASHIT becomes aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank 48 hours after learning of the incident or accident and provide available details upon request in line with the ESCP.

#### 8.5 Review and Evaluation - E&S Completion

Upon completion of Project activities, the MWRS-WASHIT will review and evaluate progress and completion of project activities, and all required environmental and social mitigation measures. Especially for civil works, the MWRS-WASHIT will monitor activities with regard to site restoration and landscaping in the affected areas to ensure that the activities are done to an appropriate and acceptable standard before closing the contracts, in accordance with measures identified in the ESMPs and other plans. The sites must be restored to at least the same condition and standard that existed prior to commencement of works. Any pending issues must be resolved before a subproject is considered fully completed. MWRS-WASHIT will prepare the completion report describing the final status of compliance with the E&S risk management measures and submit it to the World Bank.

#### 8.6 Technical Assistance Activities

The Project will support technical assistance towards design and feasibility studies and preparation of national water resources master plan. Type 2 and 3 technical assistance will include a gender-specific capacity gap assessment, analysis, and an action plan with monitoring indicators and reporting arrangements. Additionally, suitable design and standards for WASH facilities and infrastructure will address the needs of girls, women, boys, and people with disabilities. The Project risk mitigation measures will rely on environmental and social risk management (ESRM) instruments, assessment and tailored capacity building including staffing and logistics.

The MWRS-WASHIT will ensure that the consultants, studies (including feasibility studies, if applicable), capacity building, training, and any other technical assistance activities under the Project are carried out in accordance with Terms of Reference acceptable to the Bank, that are consistent with the ESSs. They will also ensure that the output of such activities complies with the Terms of Reference.

#### 8.7 Contingency Emergency Response Component

Component 6 is integrated in the Project design without funding or activity as its purpose if to facilitate fast response to a crisis related to the Project development objectives, e.g. flood, for which the government may want to reallocate funding rapidly to organize crisis response. It may or may not be mobilized.

The Contingency Emergency Response Components (CERC) Manual to be prepared for the Project will include a description of the environmental and social risk assessment and management arrangements if the CERC component becomes activated. This may include a CERC ESMF or an Addendum to this ESMF based on the subproject activities that will be funded under the CERC component. If such additional documentation or revision to documentation is needed, the MWRS-WASHIT will prepare, consult, adopt, and disclose these in accordance with the CERC Manual, and implement the measures and actions necessary.

#### 8.8 Implementation Arrangements

MWRS will be responsible for Project implementation, including ESF. MWRS has designated from existing staff, environmental (one), social (one), and GBV/SEA/SH specialists (one). It will directly implement component one on institutional strengthening and integrating the Sanitation mandate and capacity building. MWRS will collaborate with other institutions such as the National Water Resources Management Agency (NWRMA), the Guma Valley Water Company (GVWC), Freetown City Council (FCC) and Western Area Rural Development Council (WARD C) to implement components relevant to their mandates.

National Environmental conservation and risk management is the responsibility of Environment Protection Agency Sierra Leone (EPASL). Activities having an environmental footprint shall obtain an Environmental Impact Assessment (EIA) license to start work. There are mechanisms in place to ensure compliance. EPASL has developed an environmental regulation through the Bank's support and has benefitted from training on the ESF. There is familiarity with the Bank's ESF by EPASL. The National Protected Area Authority (NPAA) is responsible for all protected areas, parks and wetlands.

The ESMF implementation will involve the following roles and responsibilities and provides details by relevant parties during project implementation. Table 13 show the implementation arrangements for the ESMF.

Level/	Roles and Responsibilities
<b>Responsible Party</b>	
WASH Project Implementation Team (WASHIT) within the Ministry	<ul> <li>Ensure project activities do not fall under the Negative List. Fill out Screening Forms for relevant subproject activities and submit forms to the national level.</li> <li>If relevant, complete site-specific ESMPs for subproject activities and submit forms to the national level</li> </ul>
of Water Resources and Sanitation	<ul> <li>Oversee daily implementation and monitoring of environmental and social mitigation measures, and report progress and performance monthly.</li> </ul>
	<ul> <li>Provide training to local contractors and communities on relevant environmental and social mitigation measures, roles, and responsibilities.</li> </ul>
	• If contracting is managed regionally, ensure that all bidding and contract documents include all relevant E&S management provisions per screening forms, ESMPs, and ESCOPs.
	<ul> <li>Planning and implementation of ESMP</li> </ul>
	<ul> <li>Ensuring that the social and environmental protection and mitigation measures in the ESMP</li> </ul>
	<ul> <li>are incorporated in the Construction Environmental and Social Management Plan (CESMP)</li> </ul>
	• Ensuring that the Construction Supervision Consultant commits and retains dedicated staff as
	<ul> <li>social and environmental managers to oversee C-ESMP implementation</li> </ul>
	<ul> <li>Supervision and monitoring of the progress of activities of the consultants and contractors for</li> <li>the implementation of different components of ESMP</li> </ul>
	Provide guidance to Construction Supervision Consultant and contractors in conducting
	<ul> <li>subsequent monitoring and reporting and in undertaking corrective options</li> </ul>
	<ul> <li>Responsible for modifications to the ESMP when unforeseen changes are observed during</li> <li>implementation</li> </ul>
	<ul> <li>Ensure submission of periodical environmental and social management and monitoring</li> </ul>
	construct to the steering committee and the World Pank
	• reports to the steering committee and the world Ballk.
	• Promote improved social and environmental and social performance through the effective use of management systems.

#### Table 13: Implementation Arrangements

	• External communications with other implementing partners, government ministries and			
	• agencies, and non-government organizations on the matters related to environmental and			
	social management under the project.			
Construction	• directly responsible for contract administration and day-to-day project supervision including			
Supervision	environmental and social management.			
Consultant	• The Construction Supervision Consultant will consist of an environmental and social unit that			
	will advise the WASHIT on ESMP implementation and monitor the work of the contractors in the field.			
Engage environment and social specialists to ensure proper implementation of ESMP				
	provisions.			
	• Undertake regular monitoring of the contractor's environmental performance, as scheduled in the ESMP.			
<ul> <li>Conduct periodical environmental audits.</li> </ul>				
Prior to construction, review and approve C-ESMPs/method statements prepared				
	contractors.			
	• Supervise site environmental management system of the contractors and provide corrective instructions.			
	• Monitor the implementation of the C-ESMP and review the environmental management and			
	monitoring reports prepared by the contractor.			
	Review and report on C-ESMP implementation by the contractor.			
	prepare quarterly progress reports			
Contractors/Sub-	• Comply with the Project's environmental and social mitigation and management measures as			
Contractors	specified in ESMPs, ESCOPs, and contract documents, as well as national and local legislation.			
	• Take all necessary measures to protect the health and safety of workers and community members, and avoid, minimize, or mitigate any environmental harm resulting from project activities.			
	• Evaluate and review the ESMP developed from the main ESIA process and internalize the provisions for implementation based on the realities of the project			
	Customize the project ESMP and generate a Contractor Environmental and Social			
	Management Plan (C-FSMP) and other method statements and management plans according			
	to requirements of ESMP and get them approved by Construction Supervision Consultant.			
	Procure necessary equipment for environment measurements or engage an appropriate expert			
	personnel member for the activity in specific environment quality aspects including air quality,			
	noise, water, and soil quality,			
	Recruit qualified environmental and social safety officers to ensure compliance with			
environmental and social contractual obligations and proper implementation of				
	• Provide sufficient funding and human resources for proper implementation of CESMP; and			
	• Prepare monthly reports related to environmental and social management and monitoring for			
	review and verification by the Construction Supervision Consultant.			

#### 8.9 Proposed Training and Capacity Building

#### 8.9.1 Capacity Assessment

MWRS will be responsible for Project implementation, including ESF. The MWRS does not have a track record for implementing Bank-financed projects, but GVWC was partly involved in the implementation of the Freetown Emergency Recovery Project (FERP), P166075, with an experience in E&S risk management under the Operational Policies (OPs). GVWC has E&S experience as part of compliance requirements of development partners, such as the implementation **102** the ongoing AfDB WASH and Aquatic Environment

Revamping Project, and the Millennium Challenge Corporation's Threshold Project (2018-2019), by which it developed an Environmental Management System (EMS).

Institutions involved have some E&S risk management experience from previous projects but require systematic ESF institutional capacity assessment, including gender aspects and proportionate capacity building plans (human resource, soft skills training, and logistics). There is weak institutional and human capacity to manage and mitigate the risks associated with the Project activities. MWRS and implementing partners shall establish an E&S risk management in accordance with the ESF. MWRS and SALWACO FCC and EPASL will require training on the ESF.

Successful implementation of the Project will depend, among others, on the effective implementation of the environmental and social risk management measures outlined in this ESMF. Training and capacity building will be necessary for the key stakeholders in order to ensure effective implementation of the ESMF, SEP, and other environmental and social documents. An initial training approach is outlined in the table below. To the extent possible, training on environmental and social risk management will be integrated into the project cycle and operational procedures. Table 14 presents the proposed training and capacity building approach with an estimated budget of two hundred ten thousand United States Dollars only **US\$210,000**.

Training Required	Who to train	<b>Responsible Party</b>	Budget (US\$)
World Bank ESE and ESSs certification	MWRS-WASHIT/IAs	Ghana ESF Center	30,000
	staff	of Excellence	
Deep dive training on resettlement and ESE	MWRS-WASHIT/IAs	Ghana ESF Center	15,000
beep and training on resettlement and Est	staff	of Excellence	
OHS Management	MWRS-WASHIT/IAs	Ghana ESF Center	10,000
	staff	of Excellence	
Environmental and Social Risk Management	Consultation in FCC		15,000
Instruments disclosure	and WARD-C		
Training themes	MWRS-WASHIT/IAs	MWRS-WASHIT/IAs	30,000
<ul> <li>Project E&amp;S Screening</li> </ul>		supported by	
<ul> <li>GBV/SEA/SH awareness, monitoring, and</li> </ul>		consultants as	
reporting		necessary for one	
<ul> <li>OHS Management/ESMP Training for</li> </ul>		year	
Contractors			
<ul> <li>Dam safety aspects</li> </ul>			
Waste Management/Hazardous material			
management	MWRS-WASHIT/IAs	Refresher year 2	20,000
Emergency Preparedness and Response	Contractors/sub-	Refresher year 3	10, 000
Security Pick and Awareness	contractors	Refresher year 4	10,000
• Security hisk and Awdrelless		Refresher year 5	10,000

Table 14: Proposed Training and Capacity Building Approach

Training Required	Who to train	<b>Responsible Party</b>	Budget (US\$)
Biodiversity Management			
Chance finds procedures			
<ul> <li>Incident investigation and reporting</li> </ul>			
E&S monitoring and reporting			
Grievance redress mechanism			
<ul> <li>Stakeholder engagement and project communications</li> </ul>			
• Deep dive training on resettlement and ESF.			
<ul> <li>SEA/SH Sensitization, monitoring and reporting</li> </ul>			
Environmental, Social, resettlement and OHS audit (midterm of the project and end of the project)		MWRS-WASHIT/IAs	60,000
Total			210,000

**N.B.** Project sources should be available to train E&S staff. Budget will not include staff salaries for environmental Specialist, social specialist and GBV/SEA/SH specialist staff the operating cost of the GRM, consultation of stakeholders, and preparation and implementation of the GBV/SEA/SH Prevention and Response Action Plan.

#### 8.10 Estimated Budget

The project will allocate budget for the preparation of instruments, such as ESIA, ESMP, RP and other sitespecific instruments as required. As the specific sites, and type of instruments is not known at this stage, it is not possible to provide the estimated budget.

## 9. Stakeholder Engagement, Disclosure, and Consultations

A separate Stakeholder Engagement Plan (SEP) has been prepared for the Project, based on the World Bank's Environmental and Social Standard 10 on Stakeholder Engagement. The SEP can be found in MWRS website and WB external website.

This ESMF, as well as the SEP and the Environmental and Social Commitment Plan (ESCP) that have been prepared for this project, have been disclosed in draft form stakeholder consultations on the stated websites. Key feedback, if any, on the disclosed ESMF is listed here [summary of feedback].

# 9.1. Stakeholder Consultation Undertaken During Project Preparation and E&S Instruments Development

To date, three sets of stakeholder consultations were undertaken for SL Water Security and WASH Access Improvement Project. In the below Subsections a summarized findings from these stakeholder engagement activities are presented.

#### 9.1.1 Stakeholder Consultation: Project Preparation phase, October 2024

Following the World Bank's engagement to support the preparation of Sierra Leone's National WASH Development Plan 2025 – 2035, a stakeholder engagement and workshop was held from October 8 - 13, 2024. The development of the National WASH Sector Development Program (NWASHSDP) aims at providing a comprehensive roadmap for increased access to safely managed WASH services for households (domestic) and institutions. A stakeholder engagement workshop was held on December 16 – 17, 2024, co-led by the MWRS and the World Bank, gathered 63 participants representing all water sector institutions. It had the following objectives: (i) Consult key people, the MWRS, as well as other key partners and stakeholders to inform about the preparation of the proposed program; (ii) Discuss the preliminary content of the NWASHSDP, solicit stakeholder inputs and fill requisite gaps; (iii) Present the program preparation timeline.

#### 9.1.2 Key feedback from the workshop

- There are fragmented information and documents regarding the WASH sector development in Sierra Leone. The NWASHSDP presents a good opportunity to harmonize these pieces into one coherent document.
- There are misunderstandings in the sector's decision-making structure as presented in the workshop's
  institutional working group. This was described as unreflective on how the recent institutional change
  envisions the sector.
- There was an agreement on the Goal and Vision of the NWASHDP. However, further discussions need to be held to firm up realistic targets for the development of the plan.
- The is a strong sense of ownership and commitment. The thematic working groups provided respective inputs on the key challenge, strategies and priority actions critical to the development of the Sierra Leone WASH sector.

#### 9.1.3 Bank Task Team Consultations (Successive Project Preparation Missions)

As part of the Project preparation, the Task Team has conducted three missions with several meetings with government counterparts within and beyond the MWRS, Bank colleagues working in related sectors, development partners and NGOs active in the sect005As part of the SL Water Security and WASH Access Improvement Project Preparation Missions, team members drawn from the World Bank and implementing

agencies, visited Kingtom FSTP, potential sites for FSTP in WRRD C and FCC as well as different relevant governmental institutions were visited and assessed the implementation capacity and commitment towards the E&S requirements were examined.

Below are the Consultations Outcomes:

- The team integrated the feedback received from stakeholders in the program and kept close contact and structured engagement with core program and Project teams.
- The team followed up and organized virtual interviews with key people in the sector beyond the MWRS.

#### 9.1.4 Stakeholder Consultation during E&S Instruments Preparation, April 2025

During this RF and ESMF preparation, two stakeholder consultations were undertaken Western Area Rural District Council - WARD C (at Water Loo) and Freetown at Brookfields Hotel, 9<sup>th</sup> – 10<sup>th</sup> of April 2025 respectively. The stakeholder consultation meetings were attended by a diverse group of stakeholders, including, Community leaders (Headmen) and members, Ward Councilors and devolve functions representatives (WARD C), Water Catchment Committee Members, Representatives from civil society organizations (CSOs), Women and youth representatives, Ministry of Water Resources and Sanitation and its agencies (SALWACO, GUMA, NWRM and EWRC).

A total of 110 participants took part in the two consultation sessions. These sessions were aimed to ensure stakeholder participation, raise awareness, and gain feedback and support from local stakeholders and affected communities. The main objectives include:

- To introduce the proposed project overview, its subcomponents, institutional arrangements and the required E&S instruments that are relevant to the project.
- To identify potential environmental and social risks and mitigation strategies.
- To gather feedback from stakeholders and incorporate local perspectives into project planning.
- Strengthen collaboration with local communities and build stakeholder ownership.

These sessions have demonstrated strong interest and willingness among community members to support the Sierra Leone Water Security and WASH Access Improvement Project. The detail insights and recommendations received are under compilation and will be further integrated into subsequent the project's E&S instruments and stakeholder engagement strategies.

The below bullet points are presented to show the main extracts from these sessions.

Stakeholders share their routine experiences on the challenges of access to WASH infrastructures as a result of non-functionality. In addition, based on their past lessons, workable and coordinated strategy is required from the SL Water Security and WASH Access Improvement Project for enduring operation and maintenance. It was suggested to examine, refine and adopt the experiences of some of the non-governmental organizations working on the field in SL. Community-Based O&M strategy recently developed by MWRS in support by UNICEF, as well as best practices by GOAL SL, World Vision SL and CRS were cited as best practice reference points. Participants also emphasized that adequate and regular monitoring at all levels (including users) is an essential aspect for the sustainable utilization of projects' investment. In this connection, several participants recommended forming a local level monitoring committee (e.g. district level Community Liaison Committee) to support the project implementation in general and E&S safeguards performance compliance in particular. 106

- Participants of the consultations stressed the priority for employment opportunities for local youths and women in the project activities, as relevant and appropriate (30% female employment ratio, as supported by SL law, shall be maintained, and explicitly indicated in project documentations).
- Involvement/ participation of the private sector in the operation and maintenance of the WASH facilities (Nigerian best practice was cited by participants in managing public toilets by the private sectors). To this end, guidelines should be developed on how to manage such WASH schemes in a sustainable manner.
- Capacity enhancement programs should be designed and implemented for district councils in the areas of WASH O&M. On the other hand, future technicians from the beneficiary communities should be organized and trained, from the outset.
- The project's WASH infrastructure design shall take into account of disability conditions.
- Consider representation of WASH Users Associations as member of the Steering Committee to be established for the SL Water Security and WASH Access Improvement Project.
- Grievance redress mechanism should be in place prior to the start of project work in the target areas, with multiple channels including toll-free telephone hotline through Afri-Cell and Orange telecom service providers.
- Child friendly GRM to be employed in the schools to be selected for improved public toilets with handwashing facilities (World Vision SL was cited as a best practice).
- Prior and sufficient consultations of the community before sending contractors to our villages. Contractors shall also be properly instructed prior to engaging them to project works, thus shall adhere to local contexts, beliefs, customs, values, etc.
- Generally, all participants reflected on the beneficial impacts of the proposed project and expressed their enthusiasm for its realization in their respective localities.
- Proper planning of the resettlement operation and livelihood restoration programs as the project is seemingly requiring land for its operation. The GRM will be an important milestone in managing resettlement related complaints.
- Waste management in general and future decommissioning of FSTP in particular were raised as concerns to some of the participants for envisaging appropriate planning beforehand.
- Ensure timely disclosure of project information and E&S requirements and commitments by responsible actors, including users.
- Conduct further targeted engagement sessions for vulnerable and marginalized groups.

#### 9.2 Disclosure

The World Bank ESF / ESS require continuous engagements with stakeholders during the preparatory and implementation stages of all projects. After incorporating stakeholders' views in all environmental reports for projects, they are made available to project affected groups, local NGOs, and the public at large. Public disclosure of ESIA documents or environmental reports is also a requirement of the Sierra Leone EIA procedures.

The ESMF was prepared in conjunction with the WASH Project Implementation Team (WASHIT) within the Ministry, MDAs, City Councils, CBOs/NGOs, and other relevant stakeholders. Stakeholder consultations have been undertaken in the preparation of this project as well as the ESMF. Upon approval of the draft final ESMF report by the proponent and World Bank, the report will be disclosed and made available to the public, including all stakeholder parties. The Ministry of Water Resources and its agencies will disclose the ESMF on their website, and the link shared with the Bank. EPASL requires the ESIA/ESMP to be prepared for specific project activities to be EPASL requires the ESIA/ESMP to be prepared for specific

project activities to be disclosed across society, at the local, district and national levels for transparency and accountability, to inform decision on the EIA license.
## **10. APPENDICES**

## Appendix 1. Environmental and Social Screening Form

Project Name and P-code	
Name of person undertaking the screen:	
Designation:	
Address (Email, Phone number)	
Have you visited the site as part of the screening process? (Yes, No, Not Applicable)	
If yes, Date of site visit	

## A. Description of Activity

Nature of Activity	
State the Duration of activity:	
Describe the Scope of Activity:	
State the Region where the activity will be	
implemented:	
State the Districts and Local Councils where	
the activity will be implemented:	
Estimated Cost:	
Proposed Date of Commencement of work:	
Expected Completion of Work:	
Indicate if Technical Drawing is required:	

## B. Site Characteristics [complete this section if applicable]

No.	Site Characteristics	
1	Adjoining Land Uses or Land Cover	
2	South	
3	North	
4	East	
5	West	
6	Proximity to a natural habitat e.g. wetland, river/stream, wetlands, forest reserves, protected areas etc.	
7	Proximity a residence or any community resource or facility	
8	Proximity to a road	
9	Are there outstanding land disputes within the area? 109	

10	What is the status of the land holding	of	f the la	land h	noldin	g
	required by the project (customary, lease,	oje	ect (cu	uston	nary,	lease,
	community lands, etc.)?	et	c.)?			

#### C. Risks Identification

If implemented, would the activity Potentially	Yes	No	If Yes, give a brief description	If Yes indicate frequency of occurrence			
				Very	Rarely	Occasionally	Very
Air Quality and Noise				Rarely			Frequently
Cause air pollution?	[			[	1		
1. generation of dust							
2. generation of smoke							
3. generate fumes?							
4. generate emissions							
5. Create objectionable odor affecting							
people?							
Expose workers or the public to							
substantial air pollution?							
Cause noise pollution							
Expose persons to excessive vibration							
and noise?							
Biological Resources and Natural Resour	ces						
Occur in legally protected/nature							
reserve or Environmentally Sensitive							
Areas or a							
legally defined buffer zone; (forest							
reserves, national parks, Ramsar sites							
and wetlands, wildlife habitat areas,							
steep slopes, riparian areas, upland							
forests, vulnerable aquifers, biosphere							
reserves, world Heritage Sites, prime							
Be located within 100m from a							
Be located within 100m from a							
Environmentally Sensitive Areas?							
Have effect on neighbouring							
nrotected/nature reserve or							
Environmentally Sensitive Areas (forest							
reserves, national parks, Ramsar sites							
and wetlands, wildlife habitat areas.							
steep slopes, riparian areas, upland							
forests, vulnerable aguifers and prime							
agricultural lands?							
Have effect on flora (vegetation or					1		
plants)?							
Have effect on fauna (animals,			110				
wildlife)?		1					

If implemented, would the activity Potentially	Yes	No	If Yes, give a brief description	If Yes indicate frequency of occurrence			
Interfere with the movement of any wildlife species or organisms?							
Lead to the clearing of forestlands and							
woodiands?							
Cause disturbance in Natural nabitats?							
habitats?							
Drain wetlands, or be sited on floodplains?							
Lead to road construction or							
rehabilitation, or otherwise facilitate							
access to fragile areas (natural							
woodlands, wetlands, erosion-prone							
areas)?							
Cause disruption of wildlife migratory							
routes?							
Harvest wetland plant materials or							
utilize sediments of bodies of water?							
Involve the harvesting of timber							
resources?							
Involve the harvesting of non-timber							
resources?							
Lead to increased hunting or the							
collection of animals or plant materials?							
Increase the risks to endangered or							
Accelerate areasian by water or wind?							
Accelerate erosion by water or wind?							
nermeability?							
Involve removing renewable natural							
resources such as forest products?							
Involve the extraction of non-							
renewable natural resources?							
Affect dry season grazing areas and/or							
lead to restricted access to a common							
resource?							
Water Quality and Hydrology						•	
Occur within 100m distance from the							
nearest water body or drainage							
channel?							
Involve water extraction or abstraction							
from rivers, lakes, groundwater							
Have effect on potable water supplies							
to communities?							
Potentially contaminate surface water							
and groundwater supplies?			444				
<ul> <li>by generating liquid waste?</li> </ul>			111				
• by generating liquid with human or							
animal waste?	1	1					

If implemented, would the activity	Yes	No	If Yes, give a	If Yes	s indicate	frequency of oc	currence
Potentially			description				
<ul> <li>by generating liquid with pH</li> </ul>			p a ser a				
outside 6-9 range?							
<ul> <li>by generating liquid with an oily substance?</li> </ul>							
<ul> <li>by generating liquid with a chemical substance?</li> </ul>							
<ul> <li>by generating liquid with odor/smell?</li> </ul>							
Lead to changes in the drainage pattern of the area, resulting in erosion							
or siltation?							
Lead to increase in surface run-off, which could result in flooding on or off- site?							
Increase runoff, which could exceed							
the capacity of existing stormwater drainage?							
Increase potential for flooding?							
Potentially pollute or contaminate surface water?							
Potentially pollute or contaminate							
groundwater resources?							
Affect existing stream flow, reduce							
seasonal availability of water							
resources?							
Hazardous Waste and Materials - Will th	e activit <sup>.</sup>	y T	1				
Lead to the generation of hazardous							
waste such as:							
<ul> <li>Solvent-based paints,</li> <li>Destinides and athen conden</li> </ul>							
Pesticides and other garden     chemicals Batteries (for example							
car mobile phone or regular							
household batteries)							
Motor oils (Petrol. kerosene.							
lubricants for vehicles),							
• Cleaning and polishing chemicals,							
Pharmaceuticals (all medicines),							
<ul> <li>Electronic waste (unwanted</li> </ul>							
computer equipment – monitors,							
keyboards, laptops, CD, disc drives,							
phones, batteries, solar panels,							
meters, Laser and printer inkjet							
cartridges, fluorescent tubes and							
compact fluorescent globes (CFLs))							
IViedical waste?							
Lead to the transportation of			110				
liazaruous waste.			112				
waste.							

If implemented, would the activity Potentially	Yes	No	If Yes, give a brief description	If Yes indicate frequency of occurrence			currence
Lead to the storage and disposal of							
hazardous waste?							
Lead to the generation of Hazardous							
industrial waste (HIW)? HIW includes							
used oils, solvents, paint, batteries,							
soiled packaging, aerosols, cosmetics,							
pharmaceuticals, phytosanitary							
products, industrial sludge.							
Land Acquisition, Restrictions on Land U	se and l	nvolun	tary Resettleme	nt	1	1	
Require changes to existing land							
tenure system?							
Require acquisition of land (public or							
private, temporarily, or permanently)							
for its development?							
Potentially cause or aggravate land-use							
conflicts?							
Restrict land rights or land use rights?							
Restrict access to natural							
resources that cause a community or							
groups within a community to lose							
access to resource usage where they							
have traditional or customary							
tenure, or recognizable usage rights?							
Lead to the physical displacement.							
individuals or communities are fully or							
nartially no longer able to occupy an							
area and must relocate to a new							
location due to project activity							
Lead to economic displacement							
Economic displacement occurs when							
individuals or communities are fully or							
partially restricted in their access to							
land or resources that are important to							
their livelihoods and economic well-							
being							
Cause a disruption on Power or other							
utility supply?							
Affect livelihood opportunities of							
people?							
Labor Issues	•			•	•		
Involve the use of direct workers?							
Direct workers are people employed or							
engaged directly by the Borrower							
(including the project proponent and							
the project implementing agencies) to							
work specifically in relation to the			113				
project.							

If implemented, would the activity Potentially	Yes	No	If Yes, give a brief description	If Yes indicate frequency of occurrence			currence
Involve the use of community			-				
workers?							
Community workers are people							
employed or engaged in providing							
community labour.							
Involve the use of contracted workers?							
contracted workers are people							
employed or engaged through third							
parties to perform work related to core							
functions of the project, regardless of							
the location.							
Involve the use of primary supply							
workers?							
Primary supply workers are people							
employed or engaged by the							
Borrower's primary suppliers.							
Involve the use of Children?							
	1	1	1		1	1	
Cause the exclusion of vulnerable							
groups, poor, persons with disabilities,							
youth,women, men from Project							
benefits?							
Cause the exclusion of vulnerable							
groups, poor, persons with disabilities,							
youth,women, men from Project							
resettlement operations?							
Cultural Heritage							
Involve excavations, demolition,							
movement of earth, flooding or other							
changes in the physical environment?							
Be located in, or in the vicinity of, a							
recognized cultural heritage site?							
Affect culturally important sites in the							
community such as sacred areas, burial							
grounds or cemeteries?							
Affect religious sites shrines, temples,							
mosques, churches?							
Affect any archaeological or historical							
site?							
Community Health and Safety	1	1	I		1	ſ	
Lead to labour influx.							
Labour influx consists of the rapid							
migration to and settlement of workers							
in the project area, typically in							
circumstances where labour/skills and			114				
goods and services required for a							
project are not available locally.							

If implemented, would the activity	Yes	No	If Yes, give a	If Yes indicat	e frequency of oc	currence
Potentially			brief			
			description			
Projects also stimulate speculative						
influx ("followers"), including those						
seeking employment or enterprises						
hoping to sell goods and services to the						
temporary project workforce, as well as						
"associates" who often follow the first						
two groups to exploit opportunities for						
criminal or illicit behaviour (e.g.						
prostitution and crime).						
Create conditions that can lead to						
community health problems such as						
community exposure to health risks and						
vector-borne diseases, communicable						
diseases, injuries, nutritional disorders,						
HIV/AIDS and infectious diseases?						
Lead to increased road traffic, vehicles or						
fleets of vehicles for the purposes of the						
activity?						
Involve the use of Security personnel?						
Lead to increased GBV and SEA risks?						
Other Areas					-	
Production or use in any product or						
activity deemed illegal under host						
country laws or regulations or						
international conventions and						
agreements, or subject to international						
bans, such as pharmaceuticals,						
pesticides/herbicides, ozone depleting						
substances, PCB's, wildlife or products						
regulated under CITES.						
Production or use in weapons and						
munitions.						
Production or use in alcoholic						
beverages (excluding beer and wine).						
Production or trade in tobacco						
Gambling, casinos and equivalent						
enterprises.						
Production or trade in radioactive						
materials.						
Production or use of unbonded						
asbestos fibres.						

## D. Risks Classification

Based on the risks identified in section C the risks areas should be categorized as Low Risk, Moderate Risk, Substantial Risk or High Risk:

Risk areas	Low Risk	Moderate Risk (Risk that can	Substantial Risk	High Risk
		cause an		

	(Risk that can	impact but not	(Risks that can
	impact on a small	a serious one)	cause result in
	scale)		huge impact)
Air Quality and Noise			
Biological Resources and			
Natural Resources			
Water Quality and Hydrology			
Agricultural and Forestry			
Production			
Hazardous Waste and Materials			
Land Acquisition, Restrictions on			
Land Use and Involuntary			
Resettlement			
Socio-economic, Livelihood and			
Labour			
Social Inclusion			
Community Health and Safety			

Overall proposed activity risk classification: .....

## E. Recommendations for Instruments to be prepared

Recommendation:	Tick as appropriate	Justification
No further instrument required		
Requires the preparation of:		
Environmental and Social Impact Assessment (ESIA)		
Environmental and Social Management Plan (ESMP)		
Resettlement Action plan (RAP or ARAP)		
Environmental and Social Audit		
Hazard or Risk Assessment		
Social and Conflict Analysis		
Cultural Heritage Management Plan		
Biodiversity		
Management Plan		

#### F. National Requirements

No	If implemented, would the activity require permit or	Yes	No	Justification
NO.	approval from the following national regulatory agencies?			
1	Environmental Protection Agency			
2	Forestry Division			
3	National Water Resources Management Authority			
4	Sierra Leone Standards Bureau			
5	National Telecommunications Commission			
6	Ministry of Health and Sanitation			
7	Municipal and District Councils			

## G. Clearance

Approval's	110
Name:	110
Signature:	

## Appendix 2: ESIA Report Template

Chapter Heading	Content Outline
Executive Summary	Concisely discusses project overview, key risks significant findings and recommended actions
Chapter One: Introduction/Background	<ul> <li>Project Overview</li> <li>Justification for the Study</li> <li>Study Objective</li> <li>Scope of Work</li> <li>The Proponent <ul> <li>Ministry of Water Resources and Sanitation</li> <li>WASHIT</li> </ul> </li> <li>Report Structure</li> </ul>
Chapter Two: Policy, Legal and Regulatory Framework	<ul> <li>National Policies</li> <li>Legislation</li> <li>Regional and International Conventions to which Sierra Leone is Party</li> </ul>
	<ul> <li>World Bank's Environmental and Social Framework (ESF)         <ul> <li>The World Bank Group Environmental Health and Safety (EHS) Guidelines.</li> <li>Comparative matrix between national laws and the WB ESF, identify gaps and propose measures to address them</li> </ul> </li> <li>Institutional Framework for E&amp;S any permitting and approval processes required for the project.</li> </ul>
Chapter Three: Sub-Project Description	<ul> <li>Brief summary of the sub-project overview</li> <li>Project Description by community:</li> <li>Geographical location with maps and coordinates</li> <li>Project activities to be financed and scale and scope</li> <li>Details of site layout, access etc</li> </ul>
Chapter Four: Environmental and Social Baseline Data	Desk review findings Environmental Baseline Condition: • Environmental Baseline - Climate and Meteorology - Geology - Topography - Soil - land use - Air quality - Water resources and Hydrological conditions

	<ul> <li>Biodiversity</li> <li>Existing infrastructure; utilities (power, water supply, waste management etc)</li> <li>Noise</li> </ul>
	Social Baseline
	<ul> <li>Demographics</li> <li>Health</li> <li>Education</li> <li>Livelihoods</li> <li>Accessibility and access to services</li> <li>Social issues</li> <li>GBV issues</li> </ul>
	- Land ownership etc
	Methodology shall be presented in the Annex) In case there are areas of high environmental sensitivity, include an and Vulnerability Analysis
Chapter Five: Stakeholder Engagement	<ul><li>Stakeholder Identification</li><li>Stakeholder Engagement Plan</li></ul>
	<ul> <li>Scoping Phase – Sensitization Stakeholder Engagement</li> </ul>
	<ul> <li>Stakeholder Engagement during Baseline Data Gathering Documentation of Consultation Outcomes; feedback, concerns raised etc and any recommendations from the consultations which can be included in ESMP</li> </ul>
Chapter Six: Analysis of Alternatives	Project Alternatives
	<ul><li>Comparison of Alternatives (location, design, technology, costs etc)</li><li>Evaluation matrix and preferred option</li></ul>
Chapter Seven: Potential Environmental and Social Risks and Impact	<ul> <li>Impact Evaluation Methodology</li> <li>Potential Impacts associated with project funded activities - positive or negative; direct or indirect, cumulative; associated; short-term; long term; residual; reversible/mitigatable or irreversible on</li> <li>Env: Air, Water and Soil quality; Noise impacts; Land Use; impacts on biodiversity; green cover; materials management; waste management; any tangible cultural heritage; occupational health and safety;</li> </ul>
	<ul> <li>Social: limitations of access; disruption of utilities; life and fire safety; community health and safety; social issues; GBV; conflict; gender and vulnerable groups; impact on intangible cultural heritage; resettlement or land acquisition (make reference to RAP)</li> </ul>
	<ul> <li>Impacts shall be divided by pre-Construction; Construction; Post- Construction phases and Decommissioning Phase (only if applicable)</li> </ul>
	Impact severity matrix     Environmental and Social Picks and Impact and Mitigation Matrix
	(existing Plans such as LMP, GRM and GBV Action Plan are referred to in this matric)

Chapter Eight: Environmental and Social	Institutional Arrangements
Management Plan	<ul> <li>Project Management Responsibilities</li> </ul>
	<ul> <li>Project Implementation Unit</li> </ul>
	- Construction Supervision Consultant
	- Contractor Responsibilities
	<ul> <li>Impact Mitigation and Management Measures</li> </ul>
	<ul> <li>Mitigation Matrix which includes mitigation measures; timelines; roles and responsibilities and detailed estimated costs</li> </ul>
	<ul> <li>Monitoring and Reporting Protocols (this will include any environmental monitoring testing requirements)</li> </ul>
	Training and Capacity Building
	• Budget for implementation of the ESMP (this will build on estimated cost of contractor ESMP; licenses, clearances, sample testing monitoring etc)
	Gender Action Plan
	Grievance_Redress Mechanism
	The ESIA will include templates for the following plans (these templates will provide guidance for the Contractors to develop Contractor ESMPs)
	<ul> <li>Solid and Hazardous Waste Management Plan</li> </ul>
	<ul> <li>Stakeholder Engagement Plan</li> </ul>
	- Labour Management Plan
	- Camp Management Plan
	- Traffic Management Plan
	<ul> <li>Occupational Health and Safety</li> </ul>
	- Emergency Response Plan
	<ul> <li>Incident reporting guidelines</li> </ul>
Appendices	Include supporting documents such as data tables, maps, and technical reports, methodology for sampling etc, Sample Management Plan Annex 1: ESIA and RAP Terms of Reference Annex 2: ESIA Report Outline
	Annex 3: Stakeholder Identification and Analysis
	Annex 4: Stakenolder Engagement Attendance Record
	Construction Contracts
	Annex 6: Project Occupational Health and Safety (OHS) Plan
	Annex 7: Company Code Of Conduct Preventing Gender Based Violence And
	Annex 8: Manager's Code of Conduct on Preventing Gender Based Violence
	and Violence Against Children
	Annex 9: Individual Code of Conduct Preventing Gender Based Violence and
	Violence Against Children
	Annex 12: Grievance Uptake Channels Information Sheet
	Annex 13: Laboratory Data Statement of Result
	Annex 14: Ain Quality and Noise Monitoring
	Annex 15: Environmental and Social Technical Clauses (ESTCs)

## Appendix 3. Environmental and Social Code of Practices (ESCOP)

## 1. Objectives

This Environmental and Social Codes of Practice (ESCOP) is prepared to manage small environmental impacts during construction. The ESCOPs will apply to manage small-scale infrastructure investments which develop and support the water supply system operated by Private Water Operators. ESCOP will be a mandatory part of the construction contract or bidding documents so that the contractor complies with environmental covenants. The WASHIT and construction supervisors will be responsible for monitoring compliance with ESCOP and preparing the required reports.

## 2. Responsibilities

The WASHIT and Contractors are the key entities responsible for implementation of this ESCOP. Key responsibilities of the WASHIT and the contractors are as follows:

## (a) The WASHIT

 The WASHIT are responsible for ensuring that the ESCOP is effectively implemented. The WASHIT will assign a qualified staff to be responsible for checking implementation compliance of Contractors, include the following: (a) monitoring the contractors' compliance with the environmental plan, (b) taking remedial actions in the event of non-compliance and/or adverse impacts occur, (c) investigating complaints, evaluating and identifying corrective measures; (d) advising the Contractor on environment improvement, awareness, proactive pollution prevention measures; and (e) monitoring the activities of Contractors on replying to complaints.

## (b) Contractor

- The contractor is responsible for carrying out civil works and informs WASHIT, local authority and community about construction plans and risks associated with civil works. As such, the contractor is responsible for implementing agreed measures to mitigate environmental risks associated with its civil work.
- Contractors are required to obey other national relevant legal regulations and laws.

## Part 1 – Contractor's Responsibilities

This is an example and is not necessarily a full treatment of all requirements for a specific project. For example, there might be reasons to have contractors deal with STDs, medical and hazardous waste (e.g, oil from vehicle or furnace repair and similar, oily rags).

Issue	Environmental and Social Prevention and Mitigation Measures
Contractor Awareness of	All contractors will be responsible for conducting their work activities
E&S Risk Management	in consideration of these ESCOPs. Failure to do so could result in
	penalties or dismissal.
Pre-Construction	
Initial Checklist	That these ESCOPs have been reviewed by management and all
	WORKERS.
	Ensure all workers have appropriate PPE and are trained on potential     health and cafety risks related to their work
	<ul> <li>Workers have signed the worker code of conduct</li> </ul>
	<ul> <li>Workers fully understand all prohibitions (e.g. illegal dumping of</li> </ul>
	demolition material, use of alcohol by workers, etc.).
	<ul> <li>Consultation has been completed with the nearby community in regard to construction works and dwattion (working hours) on providing public</li> </ul>
	information and site access
	All emergency procedures are developed and workers are well
	informed.
Site Clearing	• All vegetation must be stripped from the area of construction. This has
	to be done very carefully. The valuable or reusable materials from the
	demolished construction should be kept as property of the health
	storage area provided
	The Contractor shall dispose of all construction materials/rubbish from
	the demolition/construction away from the hospital property.
Set out of Works	• The Contractor shall set out the location of the works and clearly mark
	the location of corners with timber pegs. Offset pegs shall also be
	located at one-meter offsets so that all corner points can be located
	again after excavation of soil for the correct construction of footings.
Construction	
Construction Activities	When conducting construction activities, including any destruction, the Contractor shall consider the following measures:
	<ul> <li>Prepare a management plan as to how to avoid or minimize environmental and social impact during construction activities.</li> </ul>
	<ul> <li>Maintain an adequate unoccupied buffer zone around the work areas to allow for construction traffic.</li> </ul>
	• Ensure proper signage is in place alerting residents and the public to any construction related risk.
	• Post warning signs on barricades, construction zones, and other areas limiting access to authorized personnel only.
	Implement adequate measures during demolition of existing
	infrastructure to protect workers and the public from falling debris and flying objects.
	<ul> <li>Isolate work areas from occupied areas using physical barriers, negative</li> </ul>
	pressurization of the construction or renovation area relative to
	occupied areas, and use HEPA or other filtration, where possible, to
	remove particulates.
	• Bag all construction debris and set aside designated and restricted
	waste drop or discharge zones for safe movement of wastes.
	<ul> <li>conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable.</li> </ul>

	• Use of temporary fall protection measures in scaffolds and on edges of
	elevated work surfaces, such as handrails and toe boards to prevent
	materials from being dislodged.
	• Provide all workers with safety glasses with side shields, face shields,
	hard hats, and safety shoes.
	Hearing protection should be provided where excessive noise levels are
	present.
Supervision during	• The Project Engineer will supervise compliance with these ESCOP
construction	specifications.
	• Major non-compliance of these ESCOPs by the Contractor will be cause
	for suspension of works and other penalties until the non-compliance
	has been resolved to the satisfaction of the Project Engineer.
	Contractors are also required to comply with national and municipal
	regulations governing the environment, public health, and safety.
Dust Generation / Air	Use work practices and materials that result in little or no generations
Quality	of airborne contaminants during construction or renovation activities,
	such as wet methods to suppress dust generation as well as paint and
	carpeting with low volatile organic compound emissions.
	• For indoor dust control, the Contractor may use air filters, purifiers, or
	vacuums.
	Avoid burning or incineration of construction waste materials outside
	of the building.
	Keep outdoor stockpile of aggregate/sand materials covered to avoid
	suspension or dispersal of fine soil particles during windy days or
	disturbance from stray animals.
	Reduce the operation hours of generators /machines /equipment     (vehicles as much as possible
	<ul> <li>Undertake regular maintenance of generators machinery and</li> </ul>
	equipment and vehicles.
	• Control vehicle speed when driving through community are as so that dust
	dispersion from vehicle transport is minimized.
Water Quality and	Activities should not affect the availability of water for drinking and
Availability	hygienic purposes.
	No soiling materials, solid waste, toxic or hazardous materials should be
	poured or thrown into water bodies for dilution or disposal.
	• Provide toilets with a temporary septic tank at the construction site.
	The flow of natural waters should not be obstructed or diverted to
	another direction, which may lead to drying up of riverbeds or flooding
	of settlements.
	Keep concrete mixing separate from any drainages leading to waterways.
Noise	• Plan activities in consultation with people living in the immediate
	vicinity so that noisiest activities are undertaken during periods that
	will result in least disturbance.
	Use noise-control methods such as fences, barriers, etc.
	Maintain a butter zone (such as open spaces, rows of trees or vegetated
	areas) between the project site and residential areas to lessen the
	impact of noise to the living quarters.
	Avoid doing construction work at night-time.
Soil Erosion	• Disturb as little ground area as possible, stabilize that area as quickly as
1	possible, control utamage unough the died, and trap seument onsite.

	• Erect erosion control barriers around perimeter of cuts, disposal pits, and roadways.
	<ul> <li>Schedule construction activities during dry season as much as possible.</li> </ul>
Construction Waste	<ul> <li>Segregate construction waste as recyclable, hazardous and non-</li> </ul>
	hazardous waste.
	• Collect, store and transport construction waste to appropriately
	designated/ controlled dump sites.
	• Enforce daily site clean-up and housekeeping procedures, including
	maintenance of adequate disposal facilities for construction debris.
	• On-site storage of waste prior to final disposal should be at least 50
	meters from rivers, streams, lakes and wetlands.
	<ul> <li>After each construction site is decommissioned, all debris and waste shall be desired and very lad or dispaced of in an energy ad leasting.</li> </ul>
	shall be cleared and recycled or disposed of in an approved location.
Hazardous Waste	Prior to initiation of renovation activities, a hazardous waste
	management plan/ aspestos management plan should be conducted to
	assess the presence of aspestos, mold, lead, mercury, and other
	potential contaminants that will need to be removed or isolated.
	• Collect and property dispose of small amount of maintenance materials
	<ul> <li>Never dispose of spent oils on the ground and in water courses as it can</li> </ul>
	contaminate soil and groundwater (including drinking water aquifer)
Storage of Fuels and	Store fuels oils and chemicals safely in areas on an impermeable
Chemicals	surface with berms to contain 110% of the maximum volume of the
	storage tank.
	<ul> <li>Train workers on correct transfer and handling of fuels and other</li> </ul>
	substances and require the use of gloves, boots, aprons, evewear,
	hearing protection, and other protective equipment for protection in
	handling highly hazardous materials.
	• Have adequate spill kits readily available and clearly labelled on the
	work site and train workers in their use, application and spill clean-up
	procedures.
Occupational Health and	Contractors shall conduct site specific OHS risk assessments based on
Safety	OHS management plans in line with the local legal requirements and
	WBG EHS guidelines.
	• Set up the construction site with sufficient supplies of clean drinking
	water, power, and sanitation facilities.
	• Mandate the use of personal protective equipment for workers as
	necessary (gloves, dust masks, hard hats, boots, goggles, eye, and
	hearing protection).
	<ul> <li>Follow the below measures for construction involving work at height (a.e. 2 meters along around))</li> </ul>
	(e.g. 2 meters above ground).
	Do as much work as possible from the ground.     Only ellow people with sufficient skills, knowledge, and experience to
	Only allow people with sufficient skills, knowledge, and experience to     perform the construction activity
	<ul> <li>Ensure that proper training and equipment for working at heights is</li> </ul>
	<ul> <li>Ensure that proper training and equipment for working at neights is provided</li> </ul>
	<ul> <li>Checking that the place where work at height is to be undertaken is</li> </ul>
	safe
	<ul> <li>Where possible provide fall-protection measures e.g. safety harness</li> </ul>
	simple scaffoldine/guard rail for works over 4 meters from ground
	<ul> <li>Take precautions when working near fragile surfaces.</li> </ul>

	<ul> <li>Clean up oil, grease, paint, and dirt immediately to prevent slipping and possible injury.</li> <li>Keep the site clean and free of debris daily.</li> <li>Provide an on-site first aid kit with bandages, alcohol or non-alcohol antiseptic wipes, dressings, etc. at the construction site.</li> <li>Keep corrosive fluids and other toxic materials in properly sealed containers for collection and disposal in properly secured areas.</li> <li>Ensure structural openings are covered/protected adequately. Secure loose or light material that is stored on roofs or open floors. During heavy rains or emergencies of any kind, suspend all work.</li> <li>Apply good electricity practices such as the use of safe extension cords, voltage regulators and circuit breakers, labels on electrical wiring for safety measures, awareness on identifying burning smell from wires, etc. at construction sites and provision of voltage detectors, multimeters and receptacle testers as necessary.</li> <li>Ensure adequate toilet facilities for workers, at least one toilet construction sites and provision of provision of provision of provision of toilet areas.</li> </ul>
	and females.
	• Make sure workers are aware of GRM and can access it.
	<ul> <li>As needed, necessary PPE equipment to prevent COVID transmission, hand sanitizer, physical distancing, etc. as per current government directives.</li> </ul>
Incident Reporting	The borrower is responsible for incident investigation
	<ul> <li>Investigation should start as soon as possible as information, evidence and data are freeh</li> </ul>
	<ul> <li>The borrower/PIU should quickly agree who is best placed to investigate, as well as the scope of the investigation (lead investigator should be competent)</li> </ul>
	<ul> <li>The Task Team should provide advice, but Borrower/PIU is ultimately responsible for conducting the investigation</li> </ul>
	<ul> <li>Local regulatory framework may require a regulatory authority to conduct an incident (e.g. police investigation, OSHA/Labor department)</li> </ul>
	<ul> <li>Regulatory investigation focuses on legal compliance (i.e. who is at fault) and may not include root causes (adequacy or lack of safeguards) in projects</li> </ul>
	<ul> <li>Borrower/PIU needs to conduct internal investigation/review of their safeguards and risk management</li> </ul>
	<ul> <li>Corrective actions with clearly defined timelines and people responsible for implementation.</li> </ul>
Community Health and	Recommendations for further improvement.
Safety	<ul> <li>Rope off construction area and secure materials stockpiles/ storage areas from the public and display warning signs including at unsafe locations.</li> </ul>
	<ul> <li>Do not allow children to play in and around construction areas.</li> <li>If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours, if needed.</li> </ul>
	<ul> <li>Control the driving speed of vehicles particularly when passing through community or nearby school, health center or other sensitive areas.</li> <li>Fill in all earth borrow-pits once construction is completed to avoid</li> </ul>
	<ul> <li>standing water,<sup>1</sup><sup>2</sup>/<sub>4</sub><sup>4</sup>ter-borne diseases and possible drowning.</li> <li>Avoid occurring labor influx around construction sites.</li> </ul>

	Avoid working at night.
	Recommend hiring construction workers from nearby communities.
	• Inform communities on the sexual exploitation and abuse (SEA), sexual
	harassment (SH), gender-based violence (GBV), and violence against
	children (VAC) policies.
	<ul> <li>Make sure that the community is aware of GRM and can access it.</li> </ul>
	Implementation of COVID-19 prevention measures following
	government directives.
Labor and hiring	<ul> <li>Wherever possible hire workers from the local community and encourage hiring of women, the poor, people with disabilities, and/or other vulnerable persons.</li> <li>Ensure equal pay for the same job for both men and women.</li> </ul>
	<ul> <li>Ensure the minimum working age of 18 years.</li> </ul>
	<ul> <li>No child (under 18 years) or forced labor to be hired for the project.</li> </ul>
	• Train local workers within a reasonable time frame to meet project
	requirements. Costs for training will be borne by contractors.
	Avoid and when avoidance is not possible, minimize and manage labor
	influx.
	Prepare the Code of Conduct (CoC), inform and train workers in the CoC
	Contractor staff).
	• Implement sexual exploitation and abuse (SEA), sexual harassment
	(SH), gender-based violence (GBV), and violence against children (VAC)
	training.
	<ul> <li>worksite (toilets and washing areas) for the expected number of workers. Toilet facilities should also be provided with adequate supplies of hot and cold running water, soap, and hand drying devices.</li> <li>Where needed, install, and maintain a temporary septic tank system for the collection of sanitary waste without causing pollution of nearby watercourses.</li> <li>Establish a method and system for storing and disposing of all solid waste generated at the work site.</li> <li>Do not allow the use of wood fuel for cooking or heating in any cooking</li> </ul>
	or kitchen facilities and provide alternate fuels.
	• Ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Project Engineer and not within 500 meters of existing residential settlements.
	• Ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within 500 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. Require lubricants to be recycled and a ditch to be constructed around the refueling area with an approved settling pond/oil trap at the outlet.
	• As needed, necessary PPE equipment to prevent COVID transmission,
	hand sanitizer, physical distancing, etc. as per current government
	directives.
Cultural Heritage	<ul> <li>Responsible local authorities and the National Culture Administration will oversee platecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary</li> </ul>

	<ul> <li>evaluation of the findings to be performed by the archaeologists Ministry of Tourism and Cultural Affairs (MTCA), Monuments and Relics Commission. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.</li> <li>Decisions on how to handle the findings shall be taken by the responsible authorities and Ministry of Tourism and Cultural Affairs (MTCA), Monuments and Relics Commission. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.</li> <li>Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and</li> <li>Construction work could resume only after permission is given from the local authorities responsible or Ministry of Tourism and Cultural Affairs (MTCA), Monuments and Relics Commission concerning safeguarding of the heritage.</li> </ul>
Prohibitions	<ul> <li>The following activities are prohibited on the construction site:</li> <li>Cutting of trees for any reason outside the approved construction area</li> </ul>
	<ul> <li>Hunting, fishing, wildlife capture, or plant collection.</li> </ul>
	<ul> <li>Use of unapproved toxic materials, including lead-based paints,</li> </ul>
	asbestos, etc.
	<ul> <li>Disturbance to anything with architectural or historical value.</li> <li>Disturbance of finance</li> </ul>
	<ul> <li>Building of fires.</li> <li>Use of firearms (event outboxized security guards, if any)</li> </ul>
	<ul> <li>Use of alcohol or drugs by workers</li> </ul>
Post-Construction	
Site Decommissioning	• The contractor will clean the site carefully and remove all construction
	waste materials and dump it at a designated dumping site.
	<ul> <li>Open burning of waste should not be encouraged.</li> </ul>

#### Part 2 – Contractor's Workers Environmental Code of Conducts

Do:		Do Not	
•	Use The Toilet Facilities Provided – Report	•	Remove Or Damage Vegetation Without
	Dirty or Full Facilities		Direct Instruction.
•	Clear Your Work Areas of Litter and Building	•	Make Any Fires.
	Rubbish at The End Of	•	Poach, Injure, Trap, Feed or Harm Any
•	Each Day – Use the Waste Bins Provided and		Animals – This
	Ensure That Litter Will Not Blow Away.	•	Includes Birds, Frogs, Snakes, Etc.
•	Report All Fuel or Oil Spills Immediately &	•	Enter Any Fenced Off or Marked Area.
	Stop the Spill from Continuing.	•	Drive Recklessly or Above Speed Limit
•	Smoke In Designated Areas Only and	•	Allow Waste, Litter, Oils or Foreign Materials
	Dispose of Cigarettes And		into The Stream
•	Matches Carefully. (Littering Is an Offence.)	•	Litter Or Leave Food Lying Around.
•	Confine Work and Storage of Equipment to	•	Cut Trees for Any Reason Outside the
	Within the Immediate Work Area. 12	26	Approved Construction Area
•	Use All Safety Equipment and Comply with	•	Buy Any Wild Animals for Food.
	All Safety Procedures.		

<ul> <li>Prevent Contamination or Pollution of Streams and Water Channels.</li> <li>Ensure A Working Fire Extinguisher</li> <li>Is Immediately at Hand If Any "Hot</li> <li>Work" Is Undertaken E.G. Welding, Grinding, Gas Cutting Etc.</li> <li>Report Any Injury of Workers or Animals.</li> <li>Drive On Designated Routes Only.</li> <li>Prevent Excessive Dust and Noise</li> <li>Use Of Alcohol by Workers During Work Hours</li> <li>Wash Cars or Machinery in Streams or Creek</li> <li>Do Any Maintenance (Change of Oils and Filters) Of Cars and Equipment Outside Authorized Areas</li> <li>Dispose of Trash in Unauthorized Places</li> <li>Have Caged Wild Animals (Especially Birds) In Camps</li> <li>Work Without Safety Equipment (Including Boots and Helmets)</li> <li>Creating Nuisances and Disturbances in Or Near Communities</li> <li>Use Rivers and Streams for Washing Clothes</li> <li>Dispose Indiscriminately of Rubbish or Construction Wastes or Rubble</li> <li>Spill Potential Pollutants, Such as Petroleum Products</li> </ul>		
<ul> <li>Collect Firewood</li> <li>Explosive And Chemical Fishing</li> <li>Use Latrines Outside the Designated Facilities And</li> </ul>	<ul> <li>Prevent Contamination or Pollution of Streams and Water Channels.</li> <li>Ensure A Working Fire Extinguisher</li> <li>Is Immediately at Hand If Any "Hot</li> <li>Work" Is Undertaken E.G. Welding, Grinding, Gas Cutting Etc.</li> <li>Report Any Injury of Workers or Animals.</li> <li>Drive On Designated Routes Only.</li> <li>Prevent Excessive Dust and Noise</li> </ul>	<ul> <li>Use Unapproved Toxic Materials, Including Lead-Based Paints, Asbestos, Etc.</li> <li>Disturb Anything with Architectural or Historical Value</li> <li>Use Of Firearms (Except Authorized Security Guards)</li> <li>Use Of Alcohol by Workers During Work Hours</li> <li>Wash Cars or Machinery in Streams or Creek</li> <li>Do Any Maintenance (Change of Oils and Filters) Of Cars and Equipment Outside Authorized Areas</li> <li>Dispose of Trash in Unauthorized Places</li> <li>Have Caged Wild Animals (Especially Birds) In Camps</li> <li>Work Without Safety Equipment (Including Boots and Helmets)</li> <li>Creating Nuisances and Disturbances in Or Near Communities</li> <li>Use Rivers and Streams for Washing Clothes</li> <li>Dispose Indiscriminately of Rubbish or Construction Wastes or Rubble</li> <li>Spill Potential Pollutants, Such as Petroleum Products</li> <li>Collect Firewood</li> <li>Explosive And Chemical Fishing</li> <li>Use Latrines Outside the Designated Facilities; And</li> </ul>

## Appendix 4. Environmental and Social Management Plan (ESMP) Template

Environmental and social risks and impacts are strongly linked to subproject location and scope of activities. This ESMP should be customized for each specific subproject location and activities.

#### 1. Subproject Information

Subproject Title:	
Estimated Cost:	
Start/Completion Date:	

#### 2. Site/Location Description

This section concisely describes the proposed location and its geographic, ecological, social and temporal context including any offsite investments that may be required (e.g., access roads, water supply, etc.). Please attach a map of the location to the ESMP.

#### 3. Subproject Description and Activities

This section lists all the activities that will take place under the subproject, including any associated activities (such as building of access roads or transmission lines, or communication campaigns that accompany service provision).

#### 4. ESMP Matrix: Risk and Impacts, Mitigation, Monitoring

This section should identify anticipated site-specific adverse environmental and social risks and impacts; describe mitigation measures to address these risks and impact; and list the monitoring measures necessary to ensure effective implementation of the mitigation measures. It may draw from the ESMF's pre-identification of potential risks/impacts and mitigation measures, as applicable, and drill down further to ensure relevance and comprehensiveness at the site-specific level. For subprojects involving construction, two sets of tables may be needed, for the construction phase and the operation phase.

Anticipated E&S Risks	Risk Mitigation	Impact Mitigation		Impact/Mitigation Monitoring		
and Impacts	and Management Measures	Location/Timing/Frequency	Responsibility	Parameter to be monitored	Methodology, including Location and Frequency	Responsibility

#### 5. Capacity Development and Training

Based on the implementation arrangements and responsible parties proposed above, this section outlines any capacity building, training or new staffing that may be necessary for effective implementation.

#### 6. Implementation Schedule and Cost Estimates

This section states the implementation timeline for the mitigation measures and capacity development measures described above, as well as a cost estimate for the implementation. The cost estimate can focus on the line items that will be covered by the project implementing agency, with costs of mitigation measures to be implemented by the contractor left to the contractor to calculate.

#### **IV. Review and Approval**

Prepared By:	(Signature)		
Position: Date			
Reviewed By:(Signature)	Approved By:(Signature)		
Position:Date	Position: Date		

## **Appendix 5: ESF Implementation Reporting Template**

- I. Executive Summary
  - Key Highlights: Summary of the key environmental and social achievements.
  - Current civil works:
- II. Brief description of site in bullet form:

Example: Univ of Liberia campus-

- Located at this site over xxx ha
- Works started in xxxx, expected to be completed by xx
- Supervision consultant
- Number of supervision field visits done by WASH Project Implementation Team (WASHIT) within the Ministry
- WASHIT monitoring of contractors
- etc

#### III. Contractor Information:

#### Name:

Activity	Status	Comments
ESMP submitted before start of civil works		
ESMP reviewed and cleared		
LMP and OHS plan		
Traffic Management Plan if needed		
Monthly reports submitted by contractor		
Training conducted by contractor		

#### Name:

Activity	Status	Comments
ESMP submitted before start of civil works		
ESMP reviewed and cleared		
LMP and OHS plan		
Traffic Management Plan if needed		
Monthly reports submitted by contractor		
Training conducted by contractor		

## IV. Status of E&S standards:

The following table should be filled out based on observations from supervision consultant report and field visit findings and observations:

	Status	Comments; follow-up
Waste Management		
Materials sourcing	Quality; type; registered etc	
Labor conditions		
Occupational Health and Safety	PPE usage; Training etc	
Incidents		
Community health and safety	Barricades; lighting; etc	
Biodiversity	Not relevant	
Land acquisition	Not relevant	
Stakeholder engagement		
GBV		
Grievances	Yes/no; log; feedback etc	
Communications on ESF		

## V. Synopsis of key Observations of the Supervision Consultant

Report dated		Comments
Month, 2025	1. 2. 3.	
Month, 2025		

## VI. Observations of WASHIT E&S Specialists:

Good practices undertaken	Challenges faced	Comments; suggestions

#### ANNEX I:

Add photographs; before, during and after

## ANNEX II:

Any other attachments; documents etc

## **Appendix 6: Asbestos Management Plan**

This Asbestos Management Plan is principles-based and will be revised during implementation with the assistance of an asbestos expert to provide more specific guidance on management of asbestos-containing materials (ACM) encountered under the project. The management plan draws on good international industry practice with the objective of protecting worker and community health.

## 1. Problem Background

Asbestos is a group of naturally occurring fibrous minerals with historical commercial usefulness due to their extraordinary tensile strength, poor heat conduction, and relative resistance to chemical attack (WHO). The properties that make asbestos fibers so valuable to industry are its high-tensile strength, flexibility, heat and chemical resistance, and good frictional properties.

The distribution or transmission works might include replacement of old asbestos containing pipes, which could pose health risks to workers and the community if friable pipes are encountered. The country does not currently have systems in place for handling asbestos wastes, but GVWC has been replacing and stockpiling such pipes for over a decade. An Asbestos Management Plan will be prepared for handling of asbestos materials.

## 2. Regulatory Environment

Asbestos fibers are primarily an inhalation hazard resulting in carcinogenic effect. Asbestos-containing material shall be handled and disposed of as per the following regulations:

## 2.1. World Bank (WB)

The WB provides a Technical Guidance for Asbestos Management in World Bank Operations. The note provides a list of resources on international good practices available to minimize these risks and presents an overview of some of the available product alternatives on the market. It also highlights considerations and possible operational requirements for working with asbestos materials in existing structures.

In all cases, the Bank expects borrowers and other clients of World Bank funding to use alternative materials wherever feasible. ACM should be avoided in new construction, including construction for disaster relief. In reconstruction, demolition, and removal of damaged infrastructure, asbestos hazards should be identified, and a risk management plan adopted that includes disposal techniques and end-of-life sites.

## 3. Asbestos Removal Procedures

The following is a list of requirements for asbestos removal activities derived from the Safe Work Australia (2018) Code of Practice: How to safely remove asbestos.

- **Supervision:** All asbestos removal activities must be supervised by a trained expert. For this project the supervision team will comprise the asbestos specialist/ consultant and the contractor EHS expert.
- <u>Training</u>: A training program will need to be developed for the contractor's workers that will be involved in the removal, packaging, transport, and disposal of ACM. The training program must be appropriate for the activity, undertaken prior to the commencement removal activities, and include the following elements:
  - Nature of the hazards and Risks;

- How asbestos can affect a person's health and the risks arising from exposure to airborne asbestos;
- The control measures in place and maintenance of the asbestos removal control plan for that job;
- The methods and equipment that will be used to do the job properly;
- Choosing, using and caring for PPE and Respiratory Protective Equipment (RPE);
- Decontamination procedures;
- Waste disposal procedures;
- Emergency Procedures.

Two levels of training are proposed under the Safety Instruction on Asbestos Handling:

- 1. Supervisor (40 hours) focused on planning and organizing asbestos removal and handling activities;
- 2. Worker (8 hours) focused on hazard awareness, PPE and following the asbestos management plan.
- Asbestos Removal Control Plan: An Asbestos Removal Control Plan is a document that identifies the specific control measures to be used to ensure workers and other people are not at risk when asbestos removal work is being conducted. It is focused on the specific control measures necessary to minimize any risk from exposure to asbestos. The plan must include details on the asbestos to be removed (location, type, conditions) and the asbestos removal process (method, tools, equipment, PPE to be used).

Each contractor will be required to prepare their own Control Plan which will need to specify the PPE that will be provided to workers, and also the budget provision in its bill of quantities (BoQ).

- <u>Access Control</u>: Signs are to be erected at each removal site to indicate where the asbestos removal work is being carried out and barricades erected to delineate the asbestos removal area. Access to the removal area must be limited to workers who are engaged in the removal work; people who are associated with the removal work; and people who are allowed under the Regulations to be in the asbestos removal area (for example inspectors, emergency service workers).
- Decontamination: Decontamination for the work area, workers, PPE and tools used in asbestos removal work is an important process in eliminating or minimizing exposure to airborne asbestos fibers, particularly to people outside the asbestos removal work area. The risks of each individual asbestos removal job should be assessed to determine the appropriate decontamination procedure. Decontamination facilities must be available to decontaminate the asbestos removal work area, any equipment/ tools/ PPE used in that area, workers carrying out the asbestos removal work, and other persons who have access to the asbestos removal area because they are associated with the asbestos removal work.
- Waste Containment and Disposal: Proper disposal of ACM is important not only to protect the community and environment, but als do prevent scavenging and reuse of removed material. ACM should be transported in leak-tight containers to a secure landfill operated in a manner that precludes air contamination that could result from ruptured containers (World Bank, 2009). The removal contractor must ensure that asbestos waste is contained and labelled before it is removed from the asbestos removal area. Waste must be disposed of as

soon as is practicable at a site authorized to accept asbestos waste. The disposal site and method for disposal and containment will be determined in consultation with the Kenema City Council and MOECC.

## 4. Personal Protective Equipment

As asbestos removal is a high hazard activity, appropriate PPE must be worn regardless of other health and safety control measures in place. PPE must be selected to minimize the risk to health and safety by ensuring it is:

- Suitable for the nature of the work and any hazard associated with the work;
- A suitable size and fit and reasonably comfortable for the person wearing it;
- Maintained, repaired or replaced so it continues to minimize the risk, including ensuring that the PPE is clean, hygienic and in good working order; and
- Used or worn by the worker, so far as is reasonably practicable.

Workers must be provided with information, training and instruction in the proper use and wearing of PPE; and its storage and maintenance. A worker must, so far as reasonably able, wear the PPE in accordance with any information, training or reasonable instruction. The effectiveness of PPE relies heavily on workers following instructions and procedures correctly, as well as fit, maintenance and cleaning. If PPE must be used for long periods, if dexterity and clear vision are needed for the task, or if workers have not been adequately trained on how to fit and use PPE properly, workers might avoid using it.

PPE includes the following items:

- Coveralls ideally disposable coveralls should be provided which are of a suitable standard to prevent tearing or penetration of asbestos fibers; one size bigger, as this will help prevent ripping at the seams; and fitted with hood and cuffs to prevent entry of asbestos fibers; Gloves gloves should be worn when conducting asbestos removal work. If significant quantities of asbestos fibers may be present, single-use disposable nitrile gloves should be worn. Gloves used for asbestos removal work should be disposed of as asbestos waste; Safety footwear safety footwear (for example steel-capped, rubber-soled work shoes or gumboots) should be provided for all workers removing asbestos. Safety footwear should be lace less, as laces and eyelets can be contaminated and are difficult to clean. The footwear should remain inside the asbestos removal area for the duration of the asbestos removal work and should not be shared for hygiene reasons;
- Respiratory Protective Equipment (RPE) all workers engaged in asbestos removal work must wear RPE conforming to the appropriate international standard. The selection of suitable RPE depends on the nature of the asbestos removal work, the probable maximum concentrations of asbestos fibers expected and any personal characteristics of the wearer that may affect the facial fit of the respirator (for example facial hair and glasses).

## 5. Asbestos Removal based on Approved methods

The following approved removal methods must be followed for asbestos removal:

- Wet methods and promptly placing the material in impermeable containers.
- Final clean up with decontamination facilities.
- Disposal of the removed ACM and contaminated materials in an approved landfill.
- Avoid or minimize breaking the Asbestos Cement.

- If fasteners hold the sheets in place, dampen and remove them, and place them in the waste container.
- If the sheets are bolted in place, dampen and cut the bolts while avoiding contact with the Asbestos cement.
- Remove the bolts or fixings carefully and place them in the waste container.
- Unbolt, or use cutters to release gutters, drain pipes, ridge caps, etc.
- Lower large pieces to the ground. Do not drop them or use rubble chutes. Stack sheets carefully.
- Where there are several Asbestos Cement sheets and other large items, place them in a lockable skip. Place small pieces in the asbestos waste container and avoid crushing debris on the ground.
- Double-wrap large pieces in 1000-gauge polythene sheeting. Seal with duct tape.
- Clean the equipment and the area with damp rags.

## 6. Waste Transport and Disposal

When developing a waste transport and disposal plan, the following should be taken into account:

- The containment of waste so as to eliminate the release of airborne asbestos fibers
- Details of any asbestos or ACM to be left in situ.
- The location and security of waste storage on site.
- The waste transport is within the site and off-site.
- The location of the waste disposal site.
- Approval needed from the relevant local and/or central disposal authority
- Any local/ central disposal authority requirements that may apply to the amount and dimensions of asbestos waste.

Loose asbestos waste must not accumulate within the asbestos removal work area. The loose asbestos waste should be placed in labelled asbestos waste bags or wrapped in heavy-duty polyethylene sheeting and labelled. Once the labelled asbestos waste has been removed from the asbestos removal area, it should either be placed in a solid waste drum, bin or skip; or removed immediately from the site by an approved/licensed carrier for disposal.

## Appendix 7: Waste Management Plan

## 1.0 INTRODUCTION

The following Waste Management Plan (WMP) presents a framework outlining the general requirements essential for effective management of waste generated onsite during the construction works. The WMP outlines measures required to manage and mitigate the impact of waste generation and resource consumption during the construction works of the project. The plan includes details on the following:

- The types waste generated during construction activities;
- Procedures to collect and dispose of waste;
- Measures that will be implemented to minimize waste generation associated with the development; and program for monitoring the effectiveness of these measures.

This Plan also considers other aspects to waste management such as waste reduction, segregation of waste, disposal of waste.

## 2.0 ROLES AND RESPONSIBILITIES

The relevant roles and responsibilities to this plan are as outlined:

## **Project Manager**

- Coordinate the implementation of this Construction Waste Management Plan.
- Coordinate site team to ensure site inspections and audits are conducted.
- Ensure environmental inspections are undertaken and records are kept.
- Coordinate the implementation of corrective and preventative action and incident response.
- Activate resources to ensure technical advice regarding environmental obligations, measures and protection is available.

## Site Manager

- Ensure adequate waste management infrastructure, equipment (bins and trucks) and services are provided as required.
- Ensure that any incidents or observations that may occur during waste storage and/or handling events are properly managed.
- Implement approved waste management and minimization strategies as highlighted in this plan.
- Ensure that this plan is implemented and conduct Monthly Audit in coordination with the HSE Officer.
- Shall maintain the record of audits and training conducted.

## **HSE Officer**

- Ensure that appointed waste transport vendor completes waste certificates prior to transporting. 136
- Ensure all waste bins are correctly labelled and stored in the appropriate designated area.
- Verify that all personnel, including contractors, have received the appropriate training in waste management practices and keep records of training as per Section 5 of this plan.

• Ensure Waste Inspections are being carried out on a weekly basis and Waste Inventories are being maintained.

## All Personnel

- Implement the requirements of this Waste Management Plan in all aspects of the construction works.
- Ensure that the site is kept tidy, free from litter and that waste is put in the correct bins.
- Ensure that all incidents and observations relevant to waste are reported to Project Manager.

## 3.0 AWARENESS AND TRAINING

The Project will implement an awareness and training program that will be delivered to all construction workers. This training will include, but not be limited to:

- The application of the waste management hierarchy;
- Common waste streams produced in the construction site. ;
- Dangerous materials segregation and hazard classification codes.
- Efficient waste segregation.
- Spill Response; and
- Community impacts of poor waste management.

## 4.0 WASTE MANAGEMENT REQUIREMENTS

## 4.1 Waste Elimination and Minimization

The Project shall meet or exceed the requirements of this plan by implementing and maintaining a waste minimization strategy, as a minimum standard. The waste minimization strategy shall eliminate, minimize and manage waste during the construction activities through the following:

- Identification of waste streams and quantities;
- Implementation of management strategies for each waste stream;
- Defined roles and responsibilities;
- Training and awareness;
- Monitoring of waste streams and management activities;
- Encouraging sustainable waste management practices in the supply chain;
- Minimizing wastes from excess materials including but not limited to using surplus materials prior to re-ordering and reducing packaging waste;

## 4.2 Types of Waste, Classification and Handling Method

Construction site waste can be categorized as general (non-hazardous) or regulated (hazardous) waste. Regulated wastes are hazardous waste such as waste containing asbestos, oil or chemicals substances. All other waste streams are considered general waste, unless contaminated with a regulated waste.

137 In the event that an unknown material is discovered (e.g. liquid in a drum), it will be the responsibility of the site HSE Officer to identify the waste in coordination with the Site Manager and Store Supervisor. The person accountable in the event that the waste is not identified correctly and disposed of in the appropriate manner is the Site Manager. Table 1 presents the waste types, classification and proposed handling methods to be implemented during the construction works.

Waste Type	Classification	Handling Method
Aluminum cans	General	Recycling
Batteries (cadmium and nickel/cadmium (NiCad), lead acid, lithium and other)	Regulated	Recycling
Paper	General	Recycling
Cardboard	General	Recycling
Printer cartridges	Regulated	Recycling
Plastics – bottles, drums and other containers	General (drums, depends on contaminant)	Recycle
General municipal waste	General	Treatment/Landfill
Organic waste	General	Recycle
Concrete	General	Recycle
Spent chemicals, Solvent, Paint	Regulated	Recycle
Oily waste	Regulated	Recycle
Scrap Metal (steel, aluminum, brass, copper, lead, other nonferrous metal, stainless steel and zinc)	General	Recycle
Used Filters – Oily filters	Regulated	Recycle
Septic/Effluent	Regulated	Regulated Site
Contaminated Soil	Not a waste	Treated*
High density polyethylene (HDPE) waste	General	Recycle
Rubber	Regulated	Recycle
Tires	Regulated	Recycle
Textiles and rags	General (unless contaminated with a regulated waste)	Reuse/ Recycle
Other solid regulated waste	Regulated	Regulated Landfill
Concrete –solid form left over	General	Recycled
Spent spill Clean Up	Regulated	Regulated Landfill

Types of Wastes, Classification and Handling Method

Note: General – Non-Hazardous Wasted, Regulated – Hazardous Waste

## 5.0 WASTE STORAGE REQUIREMENTS

## 5.1 General Waste

The following must be considered as minimum requirement for general waste storage areas:

 General waste bins and containers (e.g. food scrap bins, recyclable bins, recyclable paper bins) are to be placed in easily accessible locations around the worksite. Recyclable waste shall be stored separately from general waste; ensuring maximized segregation potential has been met

minimize waste sent to landfill.

- 2. Liquid and solid wastes shall be segregated to allow for maximized recycling, bins will be color coded for the waste stream, where practicable.
- Where a waste material or product does not have a specific bin, the bin used must be compatible

with the waste and must then be labelled.

4. Spare bins shall be made available to accommodate for unforeseeable events.

- 5. Waste bins shall be maintained in good condition to prevent leaks or spills. Defective containers hall not be used for waste storage or transport.
- Containers used for waste storage (such as waste oil drums) shall not be opened, handled, transported or stored in a manner that may rupture the container, cause it to leak or subject it

overpressure.

- 7. The waste storage area shall be of an adequate capacity to handle the volume of waste stored there without a risk to the environment.
- 8. The waste storage area shall be located in an easily accessible area to provide vehicle access to

materials and waste storage areas for the collection and transport of wastes.

- 9. Waste storage areas shall have adequate firefighting equipment suitable for the type of waste stored at site.
- 10. The location of the waste storage area shall also consider the proximity to neighbors and environmentally sensitive areas to minimize impacts on people and the surrounding environment (e.g. impacts due to dust, windblown rubbish, pests, odour, visual amenity, noise and light).
- 11. Suitably sized spill kits and spill containment systems relevant to the activities within the site shall be available in the vicinity of the waste storage areas. Maintenance of spill kits shall be kept

up to date, ensuring that no equipment is missing from the kit. Spills shall not be cleaned by hosing

or activities resulting in the further spread of the contaminant to land or water.

- 12. All waste storage bins shall have secure lids and if required, clasps.
- 13. All waste containers shall be appropriately identified and clearly labelled.
- 14. All lids and if applicable clasps shall be maintained on waste storage bins to ensure that the waste does not cause an odor nuisance.
- 15. Lids on general waste bins containing food scraps shall be suitable to prevent access by birds.
- 16. Maximum retention times for wastes that may produce odors shall not exceed 7 days.
- 17. Waste shall not be burned.

## 5.2 Regulated (Hazardous) Waste

Regulated wastes shall be stored in the designated waste storage area. The area shall be clearly marked and records of the waste streams stored at site shall be held by the Site Manager. An assessment of the regulated waste storage area shall be undertaken by the HSE Officer on a regular basis to ensure that incompatible wastes are segregated.

To assist in the collection and transfer of regulated wastes, designated regulated waste bins, drums and skips shall be used where applicable. The following measures shall be implemented:

- 1. There will be dedicated regulated waste storage areas, to prevent the mixing of regulated wastes with other stored material. 139
- 2. An inventory will be kept and maintained of all regulated waste stored.
- 3. Loading and unloading procedures shall be undertaken in a manner that ensures wastes will not spill or containers break.
- 4. Containers storing regulated wastes shall be securely closed where practical.

- 5. Waste storage areas shall be clearly signed designating what wastes are to be deposited at storage location and any specific directions/hazards.
- 6. All containers shall be labelled at all times for clear interpretation of the contents.
- 7. There will be adequate containment measures to prevent off-site migration of spills.
- 8. Sufficient and appropriate clean equipment (spill kit) shall be provided together with appropriate instructions and training.
- 9. Spills shall not be cleaned by hosing or activities resulting in the further spread of the contaminant to land or water through the drainage channel.
- 10. No liquid wastes, wash down waters or storm water waste contaminated with hazardous waste will be disposed of via the storm water drainage system.
- 11. As soon as practicable, all regulated waste shall be removed to an approved waste disposal facility or recycling facility.
- 12. Waste shall not be burned or allowed to burn.

## 6.0 WASTE LABELLING

All wastes shall be labelled in accordance with examples provided in line with the following guidelines:

- Ensure that there are no other labels on the waste container except a label that refers to the current contents of the specific storage vessel or container.
- Containers shall be labelled as soon as the waste is added.
- Labels shall not be placed on a waste storage vessel or container prior to the addition of the waste as any spills may destroy such labels.
- Labels shall be of a reasonable size and clarity so that the waste material is easily identified.
- Labels shall be placed on the side of the containers; however, in the event a label cannot be placed on the side it shall be placed on the top of the container.
- Label shall be positioned such that it can be easily read.
- Do not cover the manufacturer 's product label (should the original drum be used) with waste labels.

## 7.0 WASTE DISPOSAL

All waste generated on site shall be disposed of in accordance with the S.I.15 National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations 1999. Waste management options shall be done in accordance with the waste hierarchy. All other disposal options shall be considered first before sending waste to landfill and all opportunities to reduce waste volumes generated shall be explored.

## 7.1 Surplus Materials Identification, Classification and Declaration

## • Identification

The Site Manager in coordination with Store Supervisor, shall identify materials that are surplus on an ongoing basis during the construction works to avoid unnecessary purchase that may lead to waste generation.

## • Classification

Surplus Materials shall be classified by the Project as:

- a. **Obsolete:** Where a design change has rendered materials no longer required for incorporation into the construction works.
- b. Damaged: Where rectification of the damaged Material is not cost effective.
- c. **Scrap and waste materials:** Scrap are waste Materials that have no intended Project use which include but are not limited to:
  - Off cuts of pipe;
  - Off cuts of cable;
  - General recyclable waste (copper, steel, aluminium, timber, concrete);
  - Consumables; and
  - Excess tools and consumable Materials used in the construction phase.

## 8.0 WASTE TRANSPORT AND DISPOSAL

Waste shall be segregated accordingly until collection and off-site processing or disposal occurs. All waste volumes shall be transported by a licensed contractor and must be recorded on the Site Waste Report Register.

The following procedure shall be followed when waste collection occurs:

- 1. The waste collector must complete a Waste Consignment note by ensuring that:
  - a. The register has been filled out correctly.
  - b. The type of waste is identified in detail.
  - c. The area where the waste is to be collected is identified.
  - d. The amount of waste to be transported is identified.
  - e. Site contact for the collection of the waste is noted.
  - f. Handling requirements of waste have been identified from the MSDS where applicable or another relevant reference.
  - g. A contact for the waste destination has been identified and notified, where required.
- 2. During the loading of waste, spill kits and firefighting equipment must be made available as applicable.
- 3. If at any time during the load out and transporting event, it is considered unsafe to proceed or there is an increased potential that a waste material may be released to the environment, the activity shall cease, the Site Manager must be informed of the event, and an assessment of the situation must be undertaken.
- 4. All reasonable and practical measures shall be taken to ensure that wastes are adequately secured prior to the waste being transported.
- 5. The appointed waste vendor shall ensure that vehicles and equipment used for the transfer and transportation of wastes are not overloaded or loaded in a manner which could lead to a loss of containment during transportation. This shall be stated as a contract requirement.
- 6. The handling and management of wastes during transport shall be closely monitored to ensure there is no risk of a release to the environment.

# 9.0 INSPECTION CHECKLIST AND INVENTORY MANAGEMENT

Weekly visual inspections shall be performed. Evidence of inspection shall be retained and provided as may be required. The inspection checklist and inventory to be applied shall include but not be limited to:

Labeling

- Bin condition
- House keeping
- Waste Segregation
- Availability of Spill kits
- Materials and Waste Inventory

## **7.BUDGET**

The budget for implementing the ESMP covers activities to be taken to implement this plan.

## **Appendix 8: Chance Find Procedures**

## 1. INTRODUCTION

Both national regulations and World Bank Environment and Social Standards especially, ESS8: Cultural Heritage, recognize the importance of cultural heritage for current and future generations. Though project sites are not yet known, the project design suggests that there will be no impacts on cultural resources. No works is expected to be carried out in cultural heritage areas. Nevertheless, this ESS is conservatively deemed relevant.

Therefore, the purpose of this chance find procedures is to provide MIC and other parties to the project with the appropriate response guidelines to be applied if previously unknown cultural heritage is encountered. This Chance Find Procedure considers international best practices such WB ESS8, 1972 UNESCO Convention on the Protection of World Cultural and Natural Heritage (World Heritage Convention) and Sierra Leonean policies and laws for cultural resources protection. Thus, Chance Find Procedures (CFPs) are part of the E&S instruments that may have relevance during Project implementation. The Procedure applies to potential cultural heritage objects features or sites identified because of construction activities in the project area and its surroundings.

## 2. DEFINITIONS

A chance find procedure is a project-specific procedure that outlines actions to be taken if previously unknown cultural heritage is encountered. It is also defined as potential cultural heritage (or paleontological) whether movable or immovable objects, sites, structures, group of structures and natural features and landscapes that have archaeological, historical, religious, and other cultural significance. Cultural heritage recourses may include:

- Artefacts, whole or partial, such as ceramic sherds, stone items, glass fragments, bone, shell, metal, textiles, and plant and animal remains.
- Feature associated with human occupation such as trash dumps, middens, hearths, structural remains.
- Prehistoric or human remains found in formal graves, cemeteries, or as an isolated occurrence.

Non- Cultural Heritage Chance Finds many include modern objects, features, and burials and the decision about whether a Chance Find is a cultural heritage resource requiring additional treatment will be made by the PCU in consultation with the Ministry of Tourism and Cultural Affairs where necessary.

## 3. PROCEDURES

If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects or a cemetery and/or individual graves during excavation or construction, the following procedures shall be applied:

- 1. If the Contractor discovers archaeological sites, historical sites, remains and objects, including graveyard and /or individual graves during excavation or construction, the Contractor shall:
  - Stop the construction activities in area of the chance find.
  - Delineate the discovered site or area3
  - Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or National Museum takes over.

- Notify the Environmental and Social Safeguard Specialist (ESSS) who in turn will notify responsible local or national authorities in charge of the Cultural Property i.e. the National Monuments and Relics Commision-NMRC (within 24 hours or less).
- Relevant local or national authorities would oversee protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, those include the aesthetic, historic, scientific or research, social and economic values.
- Decision on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration, and salvage.
- If the cultural sites and /or relics are of high value and site preservation is recommended by the professionals and required design changes to accommodate the request and preserve the site.
- Decisions concerning the management of the finding shall be communicated in writing to relevant authorities.
- 2. Construction works could resume only after permission is granted from the responsible local authorities concerning safeguarding of the heritage.

## 3. DOCUMENTATION

The ESSS will ensure that contractors and sub-contractors staff maintain records of monitoring, Chance Finds, and it will include:

- Daily monitoring records indicating areas and activities monitored, report Chance finds and the results of any evaluations.
- Weekly reports summarising reporting period activities including Chance Finds, assessment and evaluations, internal and external communications and instructions and supporting photographic documentation (or other reference material as appropriate). An additional report aimed at fulfilling any specific Ministry requirements is also anticipated.
- Monthly reports summarising monitoring and evaluation results, status of any site treatment measure requiring instructions to contractor(s) sub-contractor(s), and other internal and external communication. Additional monthly reporting may be required by the respective MDA.

## **5.CULTURAL HERITAGE TRAINGING**

All proposed project personnel are required to receive and comply with the Code of Conduct and receive training and demonstrate competency in (1) the identification of Chance Finds cultural heritage sites, objects, or features and (2) Chance Finds Management Procedure, that is those actions that are required in the case of suspected Chance Find. This training will be incorporated into the overall induction process for firms, contractor (s), and sub-contractor (s) personnel and will include a quick reference hand-out. All employees must be aware of the Sierra Leonean Policies and Laws on cultural heritage and WB ESS 8 that forbids disturbance or removal of cultural heritage objects offsite for personal gain. Disciplinary action should be144 ken against any personnel who violate this requirement.

## **6.REPORTING AND COMMUNICATION**
Monitoring, review and reporting will be along with the conduct of ESIA/ESMP/ESMF and RAP/ARAP for the proposed project. Contractor (s); Sub-contractor (s) shall report all records on observational monitoring, protection measures, complaints, and damages to the ESSS on monthly and quarterly basis. The ESSS shall report their monitoring records and the Contractor's records to MIC which will in turn inform relevant authorities e.g., NMRC on case-to-case basis and on a quarterly basis.

#### **7.IMPLEMNETATION ARRANGEMENTS**

The implementation arrangement and responsibilities of the Chance Find Procedures shall be as follows:

No.	STAKEHOLDER	RESPONSIBILITY	RESPONSIBLE PERSON
1	WASH Project Implementation Team (WASHIT)	<ul> <li>-Overall coordination</li> <li>- Lead consultation with relevant authorities and local communities</li> <li>-Implement the procedure and provide required funds.</li> <li>- Monitoring the implementation of chance finds procedures and</li> <li>- Prepared required reports.</li> </ul>	ESSS
2	Contractors and Sub- Contractors	-Stop the construction activities in the chance find -Install temporary site protection measures; and -Inform the client and document chance finds.	Site engineer/Site foreman
3	MTCA/NMRC	-Verification of chance finds -Approval of the treatment measures; in consultation with stakeholders. -provide the authorisation to resume works in the chance find area	In charge of tourism, culture, relics and monuments
4	Local Communities	-To attend consultation meetings. -To provide required information. -Participate in treatment measures	Local Population

#### 8. BUDGET

The budget will depend on the chance finds and the proposed treatment measures. However, a provisional sum has been provided in the main ESMF implementation budget.

#### 9. CONCLUSION

The present Chance Find Procedures serve as international best practice policy for the accidental discovery of heritage resources and provide the framework to handle them. Based on the definitions provided within this document and the proposed procedures of communication and handling chance finds, MTCA will be able to deal properly with the accidental discovery of heritage resources throughout the various phase of the project implementation especially during the construction phase.

#### **Appendix 9: Sample Incident Form**

## Part C: To be completed by Borrower (following investigation)

#### C1: Investigation Findings

For example:

- *I.* Where and when the incident took place:
- *II.* Who was involved, and how many people/households were affected:
- *III.* What happened and what conditions and actions influenced the incident:
- *IV.* what were the expected working procedures and were they followed:
- V. Did the organization or arrangement of the work influence the incident:
- VI. Were there adequate training/competent persons for the job, and was necessary and suitable equipment available:
- VII. What were the underlying causes; where there any absent risk control measures or any system failures:

C2: Corrective Actions from the investigation to be implemented (To be fully described in Corrective Action Plan)				
Action	Responsible Party	Expected Date		

### Part C cont.: To be completed by Borrower (following investigation)

C3a: Fatality/Lost time Injury information

Immediate cause of fatality/injury for worker or member of the public (please check all that apply)<sup>2</sup>:

1. Caught in or between objects $\Box~$ 2. Struck by falling objects $\Box~$ 3.	Stepping on, striking agains	st, or struck by objects $\Box$
4. Drowning  5. Chemical, biochemical, material exposure	6. Falls, trips, slips 🗆	7. Fire & explosion $\Box$
8. Electrocution 🗆 9. Homicide 🗆 10. Medical Issue 🗆 11. Suicide 🗆	] 12. Others 🗌	

Vehicle Traffic: 13. Project Vehicle Work Travel 🗌 14. Non-project Vehicle Work Travel 🗌

15. Project Vehicle Commuting □ 16. Non-project Vehicle Commuting □ 17.Vehicle Traffic Accident (Members of Public Only) □

Name	Age/DOB	Date of Death/Injury	Gender	1 <b>46</b> tionality	Cause of Fatality/Injury	Worker (Employer)/Public

<sup>2</sup>See Annex 2 for definitions

C3b: Financial Support/Compensation Types (To be fully described in Corrective Action Plan template)						
1. Contractor Direct  2. Contractor Insurance  3. Workman's Compensation/National Insurance  4. Court Determined Judicial Process  5. Other  6. No Compensation Required						
Name         Compensation Type         Amount (US\$)         Responsible Party						

C4: Supplementary Narrative	C4: Supplementary Narrative				

# Appendix 10: Occupational Health and Safety (OHS) Procedures

The objective of the procedure is to achieve and maintain a healthy and safe work environment for all project workers (contracted workers and community workers) and the host community.

- On procurement for contractors, WASH Project Implementation Team (WASHIT) within the Ministry of Water Resources and Sanitation will avail the ESMF to the aspiring contractors so that contractors include the budgetary requirements for OHS measures in their respective bids.
- The contractor will develop and maintain an OHS management system that is consistent with the scope of work, which must include measures and procedures to address all the following topics listed below and in accordance with local legislation and GIIP (as defined by World Bank Group EHSGs). The management system must be consistent with the duration of contract and the LMP to be prepared under the project.
- Contractor will conduct workplace hazards identification and adopt all applicable E&S risk mitigation measures in accordance with Sierra Leone legislation requirements and WBG EHSGs.
- The contractor designates a responsible person to oversee OHS related issues at the project site and define OHS roles and responsibilities for task leaders and contract managers.
- Contractors should put in place processes for workers to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health, without fear of retaliation.
- Contractor provides preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances informed by assessment and plan. Whenever PPEs are required for the work, it must be provided at no cost for the workers.
- Contractors should assess workers' exposure to hazardous agents (noise, vibration, heat, cold, vapors, chemicals, airborne contaminants etc.) and adopt adequate control measures in accordance with local regulations and WB EHSGs.
- Contractors provide facilities appropriate to the circumstances of the work, including access to canteens, hygiene facilities, and appropriate areas for rest. Where accommodation services are provided to project workers, policies will be put in place and implemented on the management and quality of accommodation to protect and promote the health, safety, and well-being of the project workers, and to provide access to or provision of services that accommodate their physical, social and cultural needs.
- Contractor provides appropriate training/induction of project workers and maintenance of training records on OHS subjects.
- Contractor documents and reports on occupational incidents, diseases and incidents as per ESMF guidance.
- Contractor provides emergency prevention and preparedness and response arrangements to emergency situations including and not limited to workplace accidents, workplace illnesses, flooding, fire outbreak, disease outbreak, labor unrest and security.
- Contractor provides remedies for adverse impacts such as occupational injuries, deaths, disability and disease in accordance with local regulatory requirements and Good International Industry Practices.
- Contractors shall maintain all such record for activities related to safety health and environmental management for inspection by WASH Project Implementation Team (WASHIT) within the Ministry of Water Resources and Sanitation or the World Bank.

## Appendix 11: World Bank general EHS guidelines<sup>1</sup>

Air Emissions and Ambient Air Quality

WHO Ambient Air Quality Guidelines					
	Averaging Period	Value in µg/m³			
	24-hour	125 (Interim target-1)			
502		50 (Interim target-2)			
302	10 min	20 (guideline)			
	10 1111	500 (guideline)			
NO	1 year	40 (guideline)			
NO <sub>2</sub>	1 hour	200 (guideline)			
		70 (Interim target-1)			
		50 (Interim target-2)			
	1 year	30 (Interim target-3)			
		20 (guideline)			
PIVI 10		150 (Interim target-1)			
	24-hour	100 (Interim target-2)			
		75 (Interim target-3)			
		50 (guideline)			
		35 (Interim target-1)			
		25 (Interim target-2)			
	1 year	15 (Interim target-3)			
DNA		10 (guideline)			
PIVI 2.5		75 (Interim target-1)			
	24-hour	50 (Interim target-2)			
		37.5 (Interim target-3)			
		25 (guideline)			
0	8-hour daily	160 (Interim target-1)			
Ozone	maximum	100 (guideline)			

#### **Ambient Noise Quality**

Applicable Noise Guidelines				
	One Hour L <sub>Aeq</sub> (dBA)			
Receptor	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00		
Residential; institutional; educational <sup>3</sup>	55	45		
Industrial; commercial	70	70		

Water Quality and Availability

WHO Guideline values for some chemicals that are of health significance in drinking water<sup>2</sup>

•	0
Chemical	mg/l
Arsenic	0.01
Benzene	0.01
Cadmium	0.003
Carbon tetrachloride	0.004
Chlorine	5
Copper	2
Fluoride	1.5
Lead	0.01
Mercury	0.0006
Nickel	0.07
Nitrate	50
Nitrite	3
Trichloro acetate	0.2

#### Wastewater and Ambient Water Quality

Indicative values for treated sanitary sewage discharges					
Pollutants	Units	Guideline Value			
рН	pН	6-9			
BOD	mg/l	30			
COD	mg/l	125			
Total nitrogen	mg/l	10			
Total phosphorus	mg/l	2			
Oil and grease	mg/l	10			
Total Suspended solids	mg/l	50			
Total coliform bacteria	MPN/100 ml	400			

<sup>&</sup>lt;sup>1</sup> https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf?\_gl=1\*100flug\*\_gcl\_au\*MjUzMzQ3OTI3LjE3MTkzMjI0MDA.

<sup>&</sup>lt;sup>2</sup> https://cdn.who.int/media/docs/default-source/wash-documents/water-safety-and-quality/dwq-guidelines-4/gdwq4-with-add1-annex3.pdf?sfvrsn=f5f6be22\_3

<sup>&</sup>lt;sup>3</sup> For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999).

s/n	Name	Organization	Designation	Email
1	Sao-Kpato Hannah	MWRS	Minister of Water	hannahmacarty@yahoo.com
	Isatta Ma-Kyne		Resources and	
			Sanitation	
2	Mohammed Bah	MWRS	National M&E	smalljueah@gmail.com
			officer	
3	Augustine Amara	MWRS	Head of Rural Water	Ingamara20131@gmail.com
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			Sanitation	
5	Abubakarr Sesay	MWRS	Environmental	Abubakarrsesay754@gmail.com
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	Susan M Gbane	MWRS	Secretary	Susangbanie25@gmail.com
6	Mohammed I.	Guma Valley	Production	Medvick2020@gmail.com
	Koroma	Water Company	Manager	
		(GVWC)		
7	Madonna RE Coke	GVWC	Head of Treatment	madonnacoker@gmail.com
			Plant	
8	Benjamin Kanu	GVWC	Assistant Head of	Benjaminkanu10@gmail.com
			Treatment Plant	
9	Abdulai Kobba	GVWC	Estate Supervisor	
10	Mohammed L. Bah	FCC	Engineer	Lamaranabah333#=@gmail.com
11	Getu Debella	GOAL	Programs Director	gdebella@sl.goal.ie
12	Ebenezer Appiah	GOAL	Project Manager	eappiah@sl.goal.ie
			Kingtom	
13	Andowa William	FCC/Tech team	City Adviser	wandinga@c40.org
		C40 Cities	Waste/Methane	
14	Tamba John Snuh	GOAL	Plant operations	tsmah@sl.goal.ie
			manager	

# Appendix 12: Attendance log

# Appendix 13: Photo Log



# Appendix 14: Sample Code of Conduct for Contractors' GBV/SEA/SH Prevention and Response

To build a system for SEA/SH risk prevention and mitigation, projects must:

- Have all employees of contractors (including sub-contractors), supervising Engineers and other consultants with a footprint on the ground in the project area sign CoCs.
- Have an effective SEA/SH Prevention and Response Action Plan so that workers understand behavior expectations and policies, as well as an effective GM. This Action Plan should include training and communication. It should also include plans to make the project-affected community aware of the CoC the project staff have just signed; and
- As part of the SEA/SH Prevention and Response Action Plan, define accountability and response protocols, which set out the procedures followed for holding individuals accountable and penalizing staff that have violated SEA/SH policies.

#### Note to the Employer:

The following minimum requirements shall not be modified. The Employer may add <u>additional</u> requirements to address identified issues, informed by relevant environmental and social assessment.

The types of issues identified could include risks associated with: labor influx, spread of communicable diseases, Sexual Exploitation and Sexual Abuse (SEA) etc.

#### Sample Code of Conduct for Contractor's Personnel

We are the Contractor, [enter name of Contractor]. We have signed a contract with [enter name of Employer] for [enter description of the Works]. These Works will be carried out at [enter the Site and other locations where the Works will be carried out]. Our contract requires us to implement measures to address environmental and social risks related to the Works, including the risks of sexual exploitation and abuse and gender-based violence.

This Code of Conduct is part of our measures to deal with environmental and social risks related to the Works. It applies to all our staff, laborers and other employees at the Works Site or other places where the Works are being carried out. It also applies to the personnel of each subcontractor and any other personnel assisting us in the execution of the Works. All such persons are referred to as "**Contractor's Personnel**" and are subject to this Code of Conduct.

This Code of Conduct identifies the behavior that we require from all Contractor's Personnel.

Our workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

#### REQUIRED CONDUCT

Contractor's Personnel shall:

- 1. carry out his/her duties competently and diligently
- 2. comply with this Code of Conduct and applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person

- 3. maintain a safe working environment including by:
  - a. ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health
  - b. wearing required personal protective equipment
  - c. using appropriate measures relating to chemical, physical and biological substances and agents; and
  - d. following applicable emergency operating procedures.
- 4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
- 5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
- 6. not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
- 7. not engage in Sexual Exploitation, which means any actual or attempted abuse of 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. In Bank-financed projects/operations, sexual exploitation occurs when access to or benefit from Bank-financed Goods, Works, Consulting or Non-consulting services is used to extract sexual gain;
- 8. not engage in Rape, which means physically forced or otherwise coerced penetration—even if slight—of the vagina, anus or mouth with a penis or other body part. It also includes penetration of the vagina or anus with an object. Rape includes marital rape and anal rape/sodomy. The attempt to do so is known as attempted rape. Rape of a person by two or more perpetrators is known as gang rape;
- 9. not engage in Sexual Assault, which means any form of non-consensual sexual contact that does not result in or include penetration. Examples include: attempted rape, as well as unwanted kissing, fondling, or touching of genitalia and buttocks not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
- complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, and Sexual Exploitation, and Sexual Abuse (SEA);
- 11. report violations of this Code of Conduct; and
- 12. not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the [Project Grievance [Redress] Mechanism].

# **RAISING CONCERNS**

If any person observes behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in either of the following ways:

1. Contact [enter name of the Contractor's Social Expert with relevant experience in handling gender- based violence, or if such person is not required under the Contract, another individual

*designated by the Contractor to handle these matters*] in writing at this address [] or by telephone at [] or in person at []; or

2. Call [] to reach the Contractor's hotline (*if any*) and leave a message.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

# CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities. FOR CONTRACTOR'S PERSONNEL:

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact [*enter name of Contractor's contact person with relevant experience in handling gender-based violence*] requesting an explanation.

Name of Contractor's Personnel: [insert name]

Signature:

Date: (day month year): \_

Counter signature of authorized representative of the Contractor:

Signature:\_\_\_\_\_Date: (day month year): \_