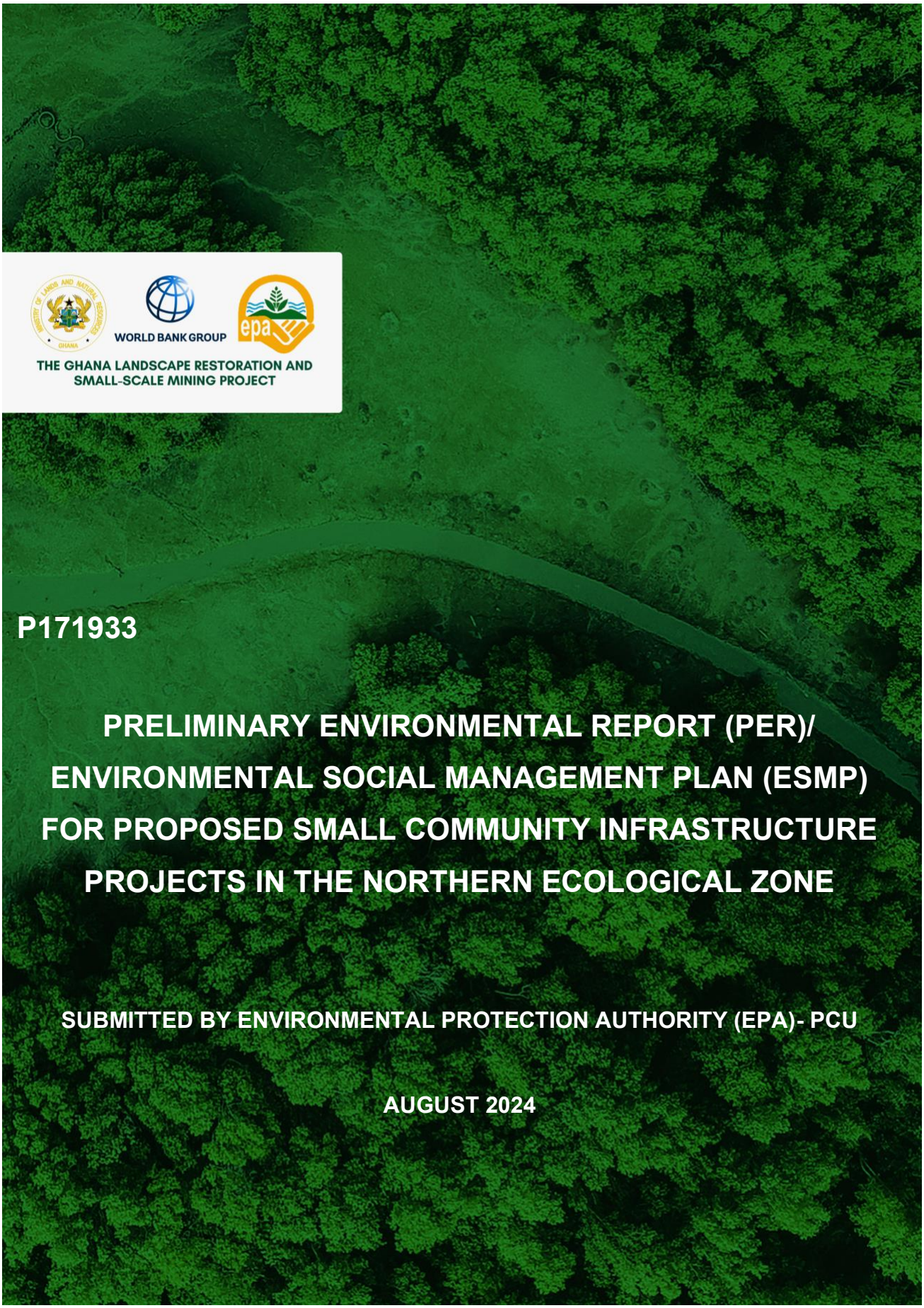

P171933

PRELIMINARY ENVIRONMENTAL REPORT (PER)/ ENVIRONMENTAL SOCIAL MANAGEMENT PLAN (ESMP) FOR PROPOSED SMALL COMMUNITY INFRASTRUCTURE PROJECTS IN THE NORTHERN ECOLOGICAL ZONE

SUBMITTED BY ENVIRONMENTAL PROTECTION AUTHORITY (EPA)- PCU

AUGUST 2024

LIST OF ABREVIATIONS

BP	Bank Procedure
CDP	Community Development Programme
CO	Carbon Monoxide
EA	Environmental Assessment
EEMC	Environ Engineering and Management Consult
EMP	Environmental Management Plan
EMS	Environmental Management Systems
EPA	Environmental Protection Agency
EPC	Engineering, Procurement and Construction
ESMP	Environmental and Social Management Plan
HSE	Health, Safety and Environment
GEPA	Ghana Environmental Protection Agency
GLRSSMP	Ghana Landscape Restoration and Small-Scale Mining Project
GoG	Government of Ghana
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
LVB	Land Valuation Board
MLGRD	Ministry of Local Government and Rural Development
MMAs	Municipal and Metropolitan Assemblies
MOH	Ministry of Health
MoWH	Ministry of Works and Housing
MSWR	Ministry of Sanitation and Water Resources
NGOs	Non-Governmental Organisations
NOx	Oxides of Nitrogen
PAD	Project Appraisal Document
PAPs	Project Affected Persons
PCDP	Public Consultation and Disclosure Plan
PDO	Project Development Objectives
PEA	Preliminary Environmental Assessment
PM	Particulate Matter
POM	Project Operation Manual
RAP	Resettlement Action Plan
RFP	Request for Proposal
ROW	Right of Way
RPF	Resettlement Policy Framework
SOx	Oxides of Sulphur
WB	World Bank
WD	Wildlife Division

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NON-TECHNICAL EXECUTIVE SUMMARY

Background

The Environmental Protection Agency (EPA) and the Ministry of Lands and Natural Resources (MLNR) are currently implementing the Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP) in support of targeted actions to address land degradation through sustainable Integrated Landscape Management (ILM). The GLRSSMP is funded by the World Bank / International Development Association credit, with leveraged grant financing from the Global Environment Facility (GEF), the PROGREEN Trust Fund, and the Extractives Global Programmatic Support Trust Fund to upscale and support the Government of Ghana in sustainable land management to address land degradation in Ghana. Under the Project, EPA is responsible for landscape restoration activities, while the MLNR is responsible for formalization of Artisanal Small-scale Mining (ASM).

Component 3 of GLRSSMP intends to construct small community infrastructure projects in the Sissala East, Sissala West, Daffiama-Bussie-Issa and Wa East districts, all in the Upper West Region; Mamprugu-Moagduri district in the North East Region; and Builsa South, Bawku West and Nabdam districts in the Upper East Region. The sub-projects include the following:

- A two-room semi-detached quarters for FSD/WD staff, to support management of the East Wildlife Corridor and Six Forest Reserves (FRs). Only two of such blocks will be constructed in Bawku, Upper East region.
- Construction of dugouts in selected communities in the Upper East, North East and West Regions.
- Construction of post-harvest processing infrastructure mainly crop drying platforms and mini shea and groundnut processing facilities.

Purpose of the ESMP

The report seeks to identify and evaluate key environmental and social risks and impacts that could result from project activities and provide appropriate management measures. It also proposes incorporating environmental and social /sustainability issues in the planning, design, construction and implementation of the various proposed facilities. The ESMP provides a guide or framework for all contractors in the execution of the intended infrastructure works.

Scope of the ESMP

The scope of this plan is based on the requirements of the Ghana Environmental Assessment Regulations, 1999 (LI 1652), the Ghana Environmental Assessment Procedures and the World Bank Environmental and Social Standards. The ESMP covers project facilities to be constructed in the Sissala East, Sissala West, Daffiama-Bussie-Issa, and Wa East districts, all in the Upper West Region; Mamprugu-Moagduri district in the North East Region; and Builsa South, Bawku West and Nabdam districts in the Upper East Region, as summarized in the table below:

District	Community/ Location	Type of Facility
UPPER WEST REGION		
Sissala East	Sakalu	Optimized Dugout
Sissala East	Sakalu	Shea processing plant
Sissala East	Kuroboi	Optimized Dugout
Sissala West	Jitong	Optimized Dugout
Sissala West	Bullu	Shea processing plant
Sissala West	Dassima	Optimized Dugout
Daffiama-Bussie-Issa	Kojopere	Optimized Dugout
Wa East	Funsi	Optimized Dugout
Wa East	Viaha	Optimized Dugout
Wa East	Saggu	Optimized Dugout
Wa East	Bonaa	Shea processing plant
Wa East	Chassia	Optimized Dugout
Wa East	Suma	Processing plant
UPPER EAST REGION		
Builsa South	Musidema	Optimized Dugout
Builsa South	Gbedemblisi	Optimized Dugout
Bawku West	Tilli	Staff Quarters for FSD & WD staff
Bawku West	Sheiga	Mini shea processing plant
Bawku West	Kusanaba	Optimized Dugout
NABDAM	Nangode	Optimized Dugout
NORTH EAST REGION		
Mamprugu-Moagduri	Kubori	Drying Platform
Mamprugu-Moagduri	Tantala	Optimized Dugout
Mamprugu-Moagduri	Dabozesi	Optimized Dugout
Mamprugu-Moagduri	Jadema	Shea processing facility

Policy, Legal, Regulatory and Institutional Framework

The execution of the proposed project will be done within the confines of relevant national and international legal and regulatory frameworks. The implementation will be guided by the following and their applicability has been explained in the main report.

National Policy Requirements

- Constitution of the Republic of Ghana, 1992
- National Environmental Policy (2014)
- National Land Policy, 1999
- National Water Policy, 2007

- National Environmental Action Plan/Policy, 1995
- National Climate Change Policy (GNCCP), 2013
- National Gender Policy, 2015
- National Workplace HIV/AIDs Policy
- Ghana Accelerated Action Plan Against Child Labour (2023-2027)
- The Child Labour Hazardous Activity Framework (2021)

National Legal and Regulatory Requirements

- The Environmental Protection Agency Act, 1994 (Act 490)
- Environmental Assessment Regulations, 1999 (LI 1652)
- Fees and Charges (Miscellaneous Provision) Act, 2022 (Act 1080)
- Water Use Regulations, 2001 (LI 1692)
- Wildlife Resources Management Act, 2023 (Act 1115)
- Land Use and Spatial Planning Act, 2016 (Act 925)
- Land Act, 2020 (Act 1036)
- Labour Act, 2003 (Act 651)
- Hazardous and Electronic Waste Control and Management Act, 2016 (Act 917)
- Hazardous, Electronic and Other Wastes (Classification), Control and Management Regulations, 2016 (LI2250)
- Local Governance Act, 2016 (Act 936)
- Public Health Act, 2012 (Act 851)
- Persons with Disability Act, 2006 (Act 715)
- Factories, Offices and Shops Act, 1970 (Act 328)
- Ghana National Fire Service Act, 1997 (Act 537)
- Fire Precaution (Premises) Regulations, 2003 (LI1724)
- Occupational Safety and Health Policy of Ghana (Draft)
- Workmen's Compensation Law, 1987 (PNDCL 187)
- Children's Act, 1998 Amended in 2016 (Act 937)
- Ghana Building Codes (GhBC:GS 1207), 2018

National Environmental Quality Standards

- Ghana Standards for Environment and Health Protection -Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236, 2019)
- Ghana Standards for Health Protection - Requirements for Ambient Noise Control (GS 1222, 2018)

- Ghana Standards for Environment and Health Protection - Requirements for Motor Vehicle Emissions (GS1219, 2018)

Institutional Framework

Institutions that have responsibility for ensuring that the risks and opportunities associated with the project are effectively managed are listed below;

- The Ministry of Environment Science Technology and Innovation (MESTI)
- The Environmental Protection Agency (EPA)
- Wildlife Division of Forestry Commission
- Directorate of Crop Services (Ministry of Food and Agriculture)

International Frameworks

- The World Bank Environmental and Social Framework, 2018
- The World Bank Group (WBG) Environment, Health and Safety Guidelines (EHSGs).

Citizen Engagement and Stakeholder Consultation

Stakeholders including the beneficiary District Assemblies, Chiefs, Opinion leaders and the beneficiary communities were engaged during the preparation of the ESMP, and it is the intention of the proponent to continue the engagement process during the construction and operation phases of the sub-projects. Key issues discussed during the consultations included the following

- Involvement of communities in the selection of site for the civil works
- Multiple use of the water systems
- Readiness of the beneficiary communities to voluntarily donate land for project works
- Possible accidents results from cattle crossing the road to access the water
- Expected start date of project works
- Access to market for processed Shea
- Use of community labor for construction activities
- There should be arrangements for the utilisation of the community infrastructure

A Stakeholder Engagement Plan (SEP), which defines an approach and process to stakeholder consultations for the GLRSSMP, guided all stakeholder consultations during the preparation of the ESMP. These engagements provided opportunities to address the concerns of stakeholders who are either affected by the sub-projects or are interested parties to the sub-projects. The referenced SEP also defines a suitable programme and plan for stakeholder engagement that will apply across pre-construction, construction and operational/occupational phases of the sub-projects respectively.

Grievance Redress Mechanism

The GLRSSMP shares an existing Grievance Redress Mechanism (GRM) with the African Environmental Health and Pollution Management Program (AEHPMP), which is also a World Bank funded project. The GRM provides clear channels and platforms for receiving and addressing complaints raised by project affected persons (PAPS), communities and other interested parties relating to the implementation of the sub-project activities. The GRM ensures that complaints reported

are resolved in a timely, impartial and transparent manner, thus, reducing the potential for conflicts that can stall implementation of the sub-projects. In terms of structure, the GRM consists of four levels (community, district, regional and national) for receiving of complaints and addressing them. Complaints brought at one level are escalated to the higher level if they are not resolved or where a complainant is unsatisfied with a resolution delivered.

Key Environmental and Social Risks, Impacts and Proposed Mitigation Measures

The implementation of the various civil works under the project in the Northern Ecological Savanna Zone will result risks and impacts that needs to be managed/mitigated. The mitigation measures follow the hierarchy i.e. avoid, minimize, rectify, and compensate to achieve break-even point with no net loss. The ESMP will be updated, if necessary, in the pre-construction stage.

Some key risks/ impacts and mitigation measures associated with the sub-projects are provided in the table below

Potential Impact	Proposed Mitigation Measures
Loss of Vegetation	• Limit vegetation clearing to areas within the site boundary where it is absolutely necessary.
Air quality impacts	• Use equipment and vehicles in appropriate technical conditions. • Ensure appropriate stockpile management (friable materials) to minimise dust blow. Minimise drop heights for material transfer activities such as unloading of friable materials
Noise and vibration impacts	• Ensure the use of modern and well-maintained equipment (e. g. use of silencers). • Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety • Unnecessary tooting of horn by drivers must be discouraged.
Visual Intrusion	• The project site will be fenced off to reduce visual intrusion on the public and community during the construction phase. The contractor will maintain the fencing throughout the construction period.
Solid waste issues	• Waste bins must be provided and well labelled for waste segregation and disposal. • The options for reuse/recycling of the generated waste streams will be taken into consideration • Burning of construction waste will be prohibited
Potential fire hazard	• Provide necessary fire prevention equipment on site in line with applicable regulations • Awareness creation and sensitization
Community health and safety	• Ensure site premises are provided with appropriate fencing (where applicable) and lighting. • Use hazard notices / signs / barriers to prevent access to dangerous areas especially at completed dugout
Occupation health and safety	• Ensure the use of Personal Protective Equipment (PPE) for workers.
Gender Based Violence, child labour and Child Abuse	• Require all contractors to have a Code of Conduct for project workers that prohibits gender-based violence (including sexual exploitation and abuse and sexual harassment (SEA/SH) as well as child labour, child abuse and forced labour); prohibits sexual contact with persons under 18; and contains clear sanctions in the event of breach

	• Require all contractors to regularly train employees on Codes of Conduct and how to report incidents; • Require all contractors to document other SEA/SH risk mitigation measures (including incident response procedures) • Ensure that the project's Grievance Mechanism procedures for responding to GBV/SEA/SH complaints is followed • Sensitize communities on GBV/SEA/SH risks as well as reporting mechanisms and expectations;
Conflicts relating to use of facilities	• The Community Resource Management Committee (CRMC) and Community Watershed Management Team (CWMT) will be put in place in beneficiary communities to oversee the use and management of the processing facilities. CRMCs and CWMTs will be responsible for resolving conflicts relating to use of the facilities, when they occurs. • The existing project-level grievance redress mechanism which includes defined processes for reporting and resolving complaints, will also facilitate the timely resolution of grievances, to avert their possible degeneration into conflicts. • Modalities for water sharing and use of processing facilities by other communities will be developed, to further minimise the potential for conflicts.

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Environmental and Social Management Responsibilities

The environmental and social management plan requires effective and efficient implementation, with clearly defined roles and responsibilities for the stakeholders involved. The main aim of the ESMP is to provide guidance for the management, mitigation and monitoring of the adverse sub-project risks and impacts on the physical, biological and socio-economic / socio-cultural environments as well as to promote occupational safety and health of employees, contractors and all workers engaged onsite, as well as community members, during construction, operation and maintenance of the facilities. Roles and responsibilities have been defined for all key stakeholders including, the Project Coordinating Unit, the contractor, and the supervising engineer, among others.

Key actors who will be involved in the implementation of the ESMP, and their respective roles are outlined in the table below:

Key Actors/Institutions	Description of Roles/Responsibilities
EPA-PCU	• Responsible for project implementation in general. • Have the overall responsibility to ensure that the project implements the construction phase management and monitoring requirements provided in the ESMP. • Responsible for grievance redress procedure and its functioning and oversee awareness programmes. • Ensure compliance with all legal and regulatory requirements • Make budgetary provisions for projects' environmental programs
Environmental and Social Safeguards	• Ensure proper documentation of all lands to be used for the civil works • Insertion of relevant mitigation measures (to cost) in the bidding documents prior to its advertisement; • Insertion of the environmental and social clauses in the construction and supervision contracts;

	• Undertake monthly/ad-hoc environmental and social monitoring during the construction phase works to ensure compliance with the Bank's ESS standards and conditions of the environmental permit • Undertake environmental and social reporting during the construction • Training of Works Contractors on requirements of the ESMP, Environmental and Social Clauses and Code of Conduct as well as Grievance Redress Mechanisms
Project Contractors	• Contractors for the civil works will be responsible for construction and under the project according to project specifications and designs. • Ensure that all site managers and foremen are trained in environmentally friendly construction methods • Ensure materials are sourced from licensed pits • Contractors are responsible for implementation of the construction phase mitigation measures provided in the ESMP • Responsible for presentation of monthly monitoring report to EPA-PCU during construction • Inform the Supervising Engineer of the occurrence of any unforeseen negative environmental impacts
Project design and supervision consultants	• Issue site instructions to Contractors to ensure environmental and social mitigation measures proffered by key stakeholders are carried out by Contractors • Ensures that project execution meets specified environmental, social, health and safety guidelines contained in the contract documents and ESMP.
Relevant District Assemblies	• Adhoc monitoring of project during the construction phase • Issuance of licenses and permits
The General Public/Beneficiary Communities	• Express their concerns on the project not only in the preliminary design phase but also whenever they become aware of previously unforeseen impacts or when impacts take on a different order of magnitude than expected. • Have an obligation to inform relevant authorities about such developments as early as possible. • Target for awareness raising campaigns to mitigate the negative impacts of the project. • To offer suggestions that will enhance the quality of the environment. • Complaints from the general public will also be welcomed from aggrieved individuals or group of people

Capacity Building and Training

To ensure that the ESMP provisions are implemented effectively and efficiently, some training/ capacity building of particularly project focal points and technical officers, district managers and project schedule officers of the beneficiary agencies is required. Based on the identified capacity gaps, the following are among the key topics to be covered:

- ESMP implementation and project Management
- Chance finds procedures
- General occupational health and safety at workplace
- Community role in project Development
- Workplace Security
- Gender inclusion, GBV/SEA/SH, Child labour and Child Abuse

Implementation Schedule and Budget

The elements of the implementation schedule and Budget (cost estimates) are presented in this ESMP. The schedule of implementation activities will have to be observed throughout the project life cycle. The estimated cost of implementation is USD 206,800, with further breakdown provided below:

Item No.	Cost Centre (type of activity)	Responsibility	Cost Estimates (US$)
1	ESMP Disclosure	PCU	8,000.00
2	Mitigation	PCU/Contractor/E&S Officer	40,000.00
3	Monitoring	PCU/Contractor	25,000.00
4	Stakeholder Engagement	PCU	50,000.00.
5	Training and Capacity building	PCU	40,000.00
6	Implementation of GRM	PCU	25,000.00
Sub-Total			188,000.00
	Contingency (10% of sub-total)		**18,800.00**
Grand Total			**206,800.00**

Conclusion

This Environmental and Social Management Plan covering the construction of various infrastructural projects - dugouts, staff quarters and post-harvest processing facilities (mini processing facilities and drying platform) has been prepared to address environmental and social issues.

The report has presented the corresponding mitigation and management measures for implementation during the construction and operation phases of the projects.

It is expected that this report has sufficiently dealt with the significant issues on the ground and will therefore meet the expectations of all regulators to ensure effective implementation of the project to aid government policy of integrated natural resource management.

The separate Stakeholder Engagement Plan prepared for the project provided some good guidance to the stakeholder engagement during the field visits, engagement with community members and subprojects site selection processes.

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1.0 INTRODUCTION

1.1 BACKGROUND

The Government of Ghana through the Environmental Protection Agency (EPA) and the Ministry of Lands and Natural Resources (MLNR) are currently implementing the Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP) in support of targeted actions to address land degradation through sustainable Integrated Landscape Management (ILM).

The GLRSSMP is funded by the World Bank / International Development Association credit, with leveraged grant financing from the Global Environment Facility (GEF), the PROGREEN Trust Fund, and the Extractives Global Programmatic Support (EGPS) Trust Fund to upscale and support the Government of Ghana in sustainable land management to address land degradation in Ghana. Under the Project, EPA is responsible for landscape restoration activities, while the MLNR is responsible for formalization of Artisanal Small-scale Mining (ASM).

The project involves five components:

- Component 1. Institutional Strengthening for Participatory Landscape Management.
- Component 2. Enhanced Governance in Support of Sustainable Artisanal Small-Scale Mining
- Component 3: Sustainable Crop and Forest Landscape Management
- Component 4: Project Monitoring and Knowledge Management
- Component 5. Contingent Emergency Response Component

The project development objective is to strengthen integrated natural resource management and increase benefits to communities in targeted savannah and cocoa forest landscape. As part of activities under component 3, the project is proposing to construct small community infrastructure projects in the Upper East, Upper West, and North East Regions. The proposed infrastructure works include the following:

- Construction of a two room semi-detached quarters for FSD/WD staff to support management of the East Wildlife Corridor and Six Forest Reserves (FRs).
- Construction of dugouts mainly for livestock watering in selected communities in the project area.
- Construction of post-harvest processing infrastructure, mainly, crop drying platforms and processing facilities (dawadawa, gari, shea, groundnut) in selected communities.

The proposed infrastructure construction may likely have both positive and negative environmental and social impacts/risk and therefore triggers the preparation of this ESMP to manage the impacts/risks identified.

The above proposed works have been categorized as moderate risk activities, which are likely to result in specific environmental and social impacts, that are limited in scale, are largely reversible and can be identified with a reasonable degree of certainty and readily addressed through application of recognized good international practice, mitigation measures and stakeholder engagement during project implementation. Consistent with the Ghana Environmental Assessment Requirements, the preparation of a Preliminary Environmental Report (covering these subprojects as requested by the EPA) is the equivalent of the World Bank's Environmental and Social Management Plan (ESMP).

This Environmental and Social Management Plan (ESMP) will be used in the preparation of bid documents for the selection of a Contractor for the execution of the project. Based on the Facilities Engineering Design, the Contractor to be selected will be required to integrate the recommended mitigation measures through the construction and operational phases of the projects.

1.2 PURPOSE OF THE ESMP

The report identifies and outlines key environmental and social risks and impacts that could result from project activities and provide appropriate management measures. It also incorporates environmental and social (E&S) issues in the planning, design, construction and implementation of the various proposed facilities. The document will be mandatory for use by all contractors and shall provide guidance or serve as a framework for all contractors in the execution of the intended infrastructure works.

The EPA-PCU through the E&S Safeguards team will oversee and monitor the ESMP implementation and will have ultimate responsibility for it. The mitigation measures, responsibilities and monitoring requirements need to be further conveyed to any sub-contractors engaged by any of the Contractors engaged. In the end every worker on the ground needs to be aware of the ESMP and his or her specific responsibilities under it.

The selected contractors shall use this document as guidance and amend it to the project specifications, characteristics and risks. The main body of this document provides information on project description, roles and responsibilities, environmental management measures, monitoring requirements, training requirements and stakeholder engagement approaches among others. However, selected contractors will be required to prepare specific Contractors' ESMPs (C-ESMPs) taking into account this ESMP

1.1.1 Objectives of the ESMP

The objectives of the ESMP are to:

- Outline and assess potential environmental and social impacts/risks that are likely to emanate from the construction, operation and decommissioning of the proposed projects and propose appropriate management measures.
- Prepare an Environmental and Social Monitoring Plan for management measures including Gender-based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual (SH) Harassment, Non-Discrimination, Child Labour, Occupational Health and Safety and Grievances.

- Provide a framework document to guide contractors and sub-contractors in mainstreaming E&S considerations into the execution of proposed projects.

1.3 SCOPE OF THE ESMP

The scope of this ESMP is based on the requirements of the Environmental Assessment Regulations, 1999 (LI 1652) and the Ghana Environmental Assessment Procedures, relevant World bank documents such as the Environmental and Social Framework, Environment, Health, and Safety Guidelines. The geographical scope spans across the selected communities in the various districts in the Northern Savanna Ecological Zones where the projects will be located. Geographically, the assessment spans across the Sissala East, Sissala West, Daffiama-Bussie-Issa, and Wa East districts, all in the Upper West Region, Mamprugu-Moagduri district in the North East Region; and Builsa South, Bawku West and Nabdam Districts in the Upper East Region

1.4 METHODOLOGY FOR THE ESMP

The ESMP has been prepared, taking into consideration relevant national legislation and international standards and policy frameworks such as the Environmental Assessment Regulations 1999 (LI 1652), and the World Bank Environmental and Social Framework (ESF). The methodology for the ESMP is further based on the outcome of the ESIA processes including the following:

1.4.1 Site Visits

The consultant visited the project site from 21st to 30th January, 2024 to assess the suitability and compatibility of the project with the adjoining land uses as well as make a preliminary identification of baseline environmental and social conditions. It also afforded the consultant the opportunity to establish the boundaries of the sites, establish the current conditions of the vegetation and identify human activities and their impacts.

1.4.2 Field surveys

Field surveys were undertaken by relevant subject experts and consultants, to gather data for the characterization of the existing environment of the sub-project sites and their immediate surroundings. The surveys undertaken included environmental quality especially ambient air quality and noise nuisance assessment.

1.4.3 Literature Review

Various project documents were reviewed as part of preparing this report. Some of the documents reviewed include the following:

- Design for Waterholes
- Design for processing facilities
- Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP) Environmental and Social Screening of selected Sub-Projects, Screening Report Environmental Protection Agency (EPA)
- International Bank for Reconstruction and Development and International Development Association Project Appraisal Document for Ghana Landscape Restoration and Small-Scale Mining Project August 10, 2021
- Environmental Protection Agency/Ministry of Environment Science Technology and Innovation, Ministry of Lands and Natural Resources Ghana Landscape Restoration and Small-Scale Mining Project (P171933) Environmental and Social Management Framework (ESMF), February 2021
- Environmental Protection Agency and Ministry of Lands and Natural Resources Ghana Landscape Restoration and Small-Scale Mining Project (P171933) Negotiated Environmental and Social Commitment Plan (ESCP), June 27, 2021
- Environmental Protection Agency (EPA) and the Ministry of Lands and Natural Resources (MLNR), Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP) Project Implementation Manual (PIM), June 2021
- Centre pour le Développement de la Production Faunique Wildlife Production Development Centre, Inception Report, 30 December 2023

1.4.4 Stakeholder Engagement

As part of the development of the civil works, and environmental/social due diligence, thorough E&S screening was conducted for all proposed sites for the various facilities which helped in the categorization of the projects. Engagement with key stakeholders within the civil work areas of influence, especially, the selected beneficiary communities, opinion leaders, the Assembly member, leadership of the relevant Metropolitan, Municipal and District Assembly (MMDA). Comments and concerns that were raised during the consultation and other information concerning the project provided valuable inputs into the assessment process.

1.5 Data Analysis and Reporting

The relevant data and information obtained from the desktop study/literature reviews, stakeholder consultations and field visits were collated, analyzed where necessary and were presented in the this ESMP.

1.6 Structure of the Report

The report has eleven (11) chapters preceded by an Executive Summary. These are as follows:

Executive Summary

Chapter 1: Introduction

Chapter 2: Policy, Legal and Institutional Frameworks

2.0 RELEVANT POLICY, LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK

National and sector legislations and policies relevant to the development of the civil works under the GLRSSMP have been reviewed in this section. Also, institutional requirements, World Bank Environmental and Social Standards (ESSs) and national environmental quality standards for the management of environmental and social issues potentially associated with the proposed interventions have been considered.

2.1 NATIONAL POLICY REQUIREMENTS

2.1.1 1992 Constitution of the Republic of Ghana

The Constitution of the 4th Republic is the fundamental law of Ghana and provides the basis from which all other laws are derived. Article 36(9) on Directive Principles of State Policy has a provision on the environment, which states that: "The State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek co-operation with other states and bodies for purposes of protecting the wider international environment for mankind".

Article 41(K) of the Constitution requires that all citizens observe the following;

- Protect and safeguard the natural environment of the Republic of Ghana and its territorial waters;
- Cooperate with other states and bodies to protect the wider global environment; and
- Endeavour to preserve and protect places of historical interest and preserve artefacts.

The foregoing therefore provides the basis on which the Government initiates policy actions and legislation to promote sound environmental protection and management. It invariably mandates the EPA to ensure the responsibility and obligation of the citizenry in the protection of the environment. In line with this provision, it is implicit that the project requirements will be carefully considered in line with government efforts aimed at ensuring adequate protection and safeguard for the environment.

2.1.2 National Policy Framework

Table 2.1 Applicable National Policies

No	Policies/Plans	Applicability to the project
1	**National Environmental Policy, 2012** The ultimate aim of the Policy is to improve the surroundings, living conditions and the quality of life of the entire citizenry, both present and future. It seeks to promote sustainable development through ensuring a balance between economic development and natural resource conservation. The policy thus makes a high-quality environment a key element supporting the country's economic and social development	The proposed project seeks to promote sustainable development by including economic, social and environmental considerations in the design and execution of the proposed interventions.
2	**National Land Policy, 1999**	

	The key aspects of the policy relevant to the project include: The use of any land in Ghana for sustainable development, the protection of water bodies and the environment and any other socioeconomic activity will be determined through national land use planning guidelines based on sustainable principles in the long-term national interest. Land categories outside Ghana's permanent forest and wildlife estates are available for such uses as agriculture, timber, mining and other extractive industries, and human settlement within the context of a national land use plan. All land and water resources development activities must conform to the environmental laws in the country and where Environmental Impact Assessment report is required this must be provided. Environmental protection within the 'polluter pays' principle will be enforced	Proper documentation of land donation will be ensured The project will conform to the provisions including ensuring that lands to be used for the civil works are properly documented. District/Regional managers will lead this activity to ensure that the required persons sign the document
3	**National Water Policy, 2007** The objective of Section 2.2.3 Focus Area 3 –Water for Food Security is to ensure availability of water in sufficient quantity and quality for the cultivation of food crops, watering of livestock and sustainable freshwater fisheries to achieve sustainable food security for the country. The relevant policy measures and/or actions to be undertaken include: encouraging efficient water from the dugout for livestock watering to ensure conservation of water	The project's Environmental and Social Management Plan (ESMP) includes mitigation measures against over- exploitation of water resources potentially arising from the development of dugout and also against water pollution which could emanate from construction activities or waste management at the operation phase
4	**Child Labour Hazardous Activity Framework, 2021** Defines light work permitted to children under the minimum age of employment and hazardous work prohibited to children under 18.	The sub-projects will ensure through the contractors that employment and hazardous work is prohibited for children under 18 during constructional activities
5	**National Environmental Action Plan/Policy, 1994** The National Environmental Action Plan was initiated to define a set of policy actions, related investments and institutional strengthening activities that would make Ghana's development strategy more environmentally sustainable. The Plan formulated a national environmental policy as the framework for implementing the Action Plan. The Policy aims at ensuring a sound management of resources and the environment and to avoid any exploitation of these resources in a manner that might cause irreparable damage to the environment. Specifically, it provides for maintenance of ecosystems and ecological processes essential for the functioning of the biosphere, sound management of natural resources and the environment, and protection of humans, animals and plants and their habitats.	The design and implementation of the proposed sub-project will take into consideration measures such as pollution prevention and control to promote the sustainable use of natural resources and ensure environmental management.
6	**National Climate Change Policy, 2013** The Policy is built on seven (7no.) systematic pillars and the objective of the Policy is to mitigate and ensure an effective adaptation in key sectors of the economy, such as agriculture and food security, natural resources management, energy, industry and	The subprojects seek to build the resilience of beneficiary communities by ensuring that value chains in the food systems are

	infrastructure among others. The objective is to build climate resilient technology	improved through the provision of the post-harvest infrastructure
7	**National Gender Policy, 2015** The National Gender Policy aims at mainstreaming gender equality concerns into the national development processes by improving the social, legal, civic, political, economic and socio-cultural conditions of the people of Ghana. It also seeks to empower the vulnerable groups particularly women, children, and people with special needs such as persons with disabilities and the marginalized	The project will mainstream gender issues including not discriminating against women and the vulnerable in the local communities. The ESMP has made provisions for managing GBV risks/issues.
8	**National Workplace HIV/AIDS Policy** The broad objectives of the National Workplace HIV/AIDS Policy, among others, are to provide protection from discrimination in the workplace to people living with HIV and AIDS; prevent HIV and AIDS spread among workers; and provide care, support and counselling for those infected and affected. The project will institute a plan of action to prevent HIV/AIDS spread through awareness creation.	The project duration will be short-term and use just a few migrant workers for some of the facilities. This will reduce the potential for HIV spread but an HIV policy will be provided as required by the national policy.
9	**Ghana Accelerated Action Plan Against Child Labour (2023-2027)** The Plan aims to strengthen communities and awareness raising and behavioural change to prevent and remediate child labour, decent youth employment and skills development. Priority sectors of relevance for the GLSRSSMP and civil works activities where child labour needs to be proactively identified and prevented include child labor in street hawking, begging and porterage (which could happen around construction work-sites for the sub-projects covered by this ESMP), and transportation i.e. driving tricycle and small van, commercial sex exploitation of children, type of exploitation of children which could be occurring around project sites as a result of an increase in works and economic activities in the area.	Through the sub-projects, awareness will be raised on what child labour is in the communities, ensure clear labour standards for civil works, including age-verification and awareness, and collaborate with mandated ministries to monitor, identify and help remediate any potential cases of child labour that might occur.

2.1.3 National Legal and Regulatory Requirement

Table 2.1 Applicable National Legal and Regulatory Requirements

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
1	**Environmental Protection Agency (EPA) Act 1994, Act 490** The Environmental Protection Agency (EPA) Act 1994 (Act 490) gives a mandate to the Agency to ensure compliance of all investments and undertakings with laid down Environmental Assessment (EA) procedures in the planning and execution of development projects, including compliance in respect of	Section 12 of the Act mandates the EPA to request proponents or developers to submit an environmental report for approval before any development can take

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
	existing ones. The Environmental Protection Agency (EPA) Act 490 Section 12 of 1994 confers enforcement and control powers on the EPA to compel existing companies to submit environmental or pollution management plans on their operations as a management tool for effective pollution control. The EPA is the responsible for issuing environmental permits for operations such as this project subject to EPA review	place. Therefore, the preparation of this report is in compliance with the EPA Act, 1994 (Act 490).
2	**Environmental Assessment Regulations 1999, LI 1652** The Environmental Assessment Regulations 1999 (LI 1652) enjoins any proponent or person to register an undertaking with the Agency and obtain an Environmental Permit prior to the commencement of the project. This regulation allows the EPA to place proposed undertakings at the appropriate level of environmental assessment. The LI 1652 seeks to ensure that development is undertaken in a sustainable environment	Section 9 of the Regulations mandates the EPA to request proponents or developers to submit an environmental report for approval before any development can take place. Therefore, the preparation of this report is in compliance with the Environmental Assessment Regulations, 1999 (LI 1652).
3	**Fees and Charges (Miscellaneous Provisions) Act, 2022 (Act 1080)** The Fees and Charges (Miscellaneous Provisions) Act, 2022 (Act 1080) sets out the fee regime for processing and issuing environmental permits, in line with the Environmental Assessment Regulations 1999, (LI1652).	The processing and permit fees are required for initial registration, and permit issuance respectively
5	**Water Use Regulations, 2001 (LI 1692)** The Water Use Regulations 2001, LI 1692 prohibits the use of water resources without authority from the Water Resources Commission. It provides procedures for allocating permits for various water uses including domestic, commercial, municipal, industrial, agricultural, power generation, water transportation, fisheries (aquaculture), environmental, recreational and underwater (wood) harvesting. The Act provides under section 16 for any person to apply to the Commission in writing for the grant of water right. The Regulations also prescribe the raw water charges and processing fees to be paid by prospective water users with respect to the water use permits. The Commission is also mandated to request for evidence that an environmental impact assessment or an environmental management plan has been approved by the EPA before issuance of the Water Use Permit	The dugouts will be mainly used for livestock watering and managed by community water users management committee
6	**Local Governance Act, 2016 (Act 936)**	

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
	This Act establishes and regulates the local government system and gives authority to the Regional Coordinating Council (RCC) and the District Assembly to exercise political and administrative power in the regions and districts respectively. This includes initiation of development programmes as well as development, improvement and management of human settlements and the environment through departments such as the Urban/Feeder Roads and Physical Planning Departments	The District Assemblies have oversight of development interventions within their jurisdiction. Their inputs were sought in the development of the ESMP, to enable a seamless integration of the project into activities of the Assemblies.
7	**The Children's Act 2016 (Act 937)** It seeks to reform and consolidate the law relating to children, provide for the child's rights, maintenance, and adoption, regulate child labour and apprenticeship for ancillary matters concerning children generally, and to provide for related matters. Section 87 of this Act states, "No person shall subject a child to exploitative labour". Therefore, no project activities shall engage children below the legal working age (18 years for hazardous work).	Provisions against exploiting child labour have been included in the ESMP. Contractors will be required to ensure no child is engaged during the construction phase. Monitoring mechanisms will be instituted to ensure compliance.
10	**Wildlife Resources Management Act, 2023 (Act 1115)** The Wildlife Resources Management Act aims to promote sustainable wildlife management, conservation, and community involvement in protecting Ghana's biodiversity. It sets clear guidelines for wildlife protection, licensing, and enforcement to safeguard the country's natural heritage for future generations. The Act outlines the functions of the Wildlife Division including managing protected areas, establishing advisory committees, and promoting sustainable tourism development within these areas, while ensuring environmental safeguards and community involvement. Additionally, it assists local communities in establishing and managing Community Resource Management Areas (CREMAs), enforces regulations on hunting and trading of wildlife, and represents the government in international wildlife conventions. It establishes Protected Area Management Advisory Committees for each area to integrate local community needs and ensure conservation efforts align with national objectives	Where the project falls within an established CREMA, the executives will be involved in soliciting community support for the project and managing the facility. The involvement of CREMAs in the resolution of disputes or conflicts will be most encouraged on this Project.
12	**Ghana Building Code (GhBC; GS 1207), 2018** The Ghana Building Code sets out the requirements, recommendations, planning, management and practices that will lead to the country's smooth operation and construction of residential and non-residential buildings.	The project activities will be undertaken according to the specification of the Ghana Building Code particularly for the mini processing facilities
13	**Land Use and Spatial Planning Act, 2016 (Act 925)**	

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
	The Land Use and Spatial Planning Act, 2016 (Act 925) regulates land use through a decentralised planning system to ensure judicious use of land in order to improve quality of life, promote health and safety in respect of human settlements and generally provide for spatial aspects of socio-economic development and related matters.	The project design will be guided by planning schemes and local plan guides developed by the Land Use and Spatial Planning Departments / District Assemblies
14	**Labour Act, 2003 (Act 651)** The Labour Act 2003 (Act 651) Section 118(1) stipulates that it is the duty of an employer to ensure that satisfactory, safe and healthy conditions are provided for every worker. Under these provisions, a worker is required to report situations that he believes may pose "an imminent and serious danger to his or her life, safety or health	Construction activities could result in injuries and fatalities. HSE issues will be duly assessed and mitigated for in the proposed ESMP for the project
15	**Workmen's Compensation Law, 1987 (PNDCL 187)** It is to provide for the payment of compensation to workmen for personal injuries caused by accidents arising out and in the course of their employment. The tenets of the law place a large share of the burden of supporting workers injured at the workplace on the shoulders of the employers.	The Labour policy and employment contracts will provide for workmen compensation in the event of injury.
16	**The Public Health Act, 2012 (Act 851)** The Public Health Act, 2012 (Act 851) is an Act to revise and consolidate the law relating to public health to prevent disease, promote, safeguard, maintain and protect the health of humans and animals and to provide for related matters.	Measures will be put in place to ensure project activities do not cause any public health risks to humans and animals in accordance with the Act.
17	**The Persons with Disability Act 2006. (Act 715)** An Act to provide for persons with disability, to establish a National Council on Persons with Disability and to provide for related matters. Provisions include the right to a family life and participation in social, creative or recreational activities; the prohibition of differentia treatment for residential purposes, the right to the same living conditions as persons without disability when persons with disability are placed in special institutions. No exploitation, abuse, discrimination or disrespect to persons with disability, appropriate facilities when involved in court proceedings; and access to public places.	The project will comply with this Act and ensure that there is no discrimination against disabled persons. Non-discrimination policies will be put in place and enforced, including ensuring that infrastructure developed are accessible by people with disabilities
18	**Hazardous and Electronic Waste Control and Management Act, 2016 (Act 917)** The Hazardous and Electronic Waste and Control Act 2016 (Act 917) provides list of hazardous and other waste. It also provides control, management and disposal of electrical and electronic waste. Hazardous waste generally refers to waste with properties	Substances hazardous to health such as waste oils and residual chemicals or spent lubricants will be disposed of properly

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
	that makes it potentially dangerous or harmful to human health or the environment and they include liquids, solids or gases which cannot be treated or disposed of by common mean	
19	**Hazardous, Electronic and Other Wastes (Classification) Regulations,2016 (LI2250)** The purpose of these Regulations is to (a) regulate the classification control and management of waste: (b) establish a mechanism and procedure for the listing of waste management activities that do not require a Waste Management Permit; (c) prescribe requirements for the establishment of take-back systems, (d) prescribe requirements and timeframes for the management of wastes listed in the First Schedule; (e) prescribe general duties of waste generators, waste transporters and waste managers; and (f) prescribe requirements for the disposal of wastes	Management of hazardous waste e.g. chemicals or other toxic wastes will be guided by the Schedules in LI2250
20	**Factories, Offices and Shops Act, 1970 (Act 328)** The Act requires all proponents to register every factory/workplace with the Chief Inspector of Factories Inspectorate Division (FID), report accidents, dangerous occurrences and industrial diseases, post in a prominent position in every factory the prescribed abstract of the Act and other notices and documentations, as well as outlines the regulations to safeguard the health and safety of worker	Processing facilities will be operated in accordance with this Act. Measures to prevent accidents and dangerous occurrences and minimise incidents will be captured in the HSE procedures for the construction works. Also, relevant safety notices will be posted at vantage points.
21	**Ghana National Fire Service Act, 1997 (Act 537)** The Ghana National Fire Service (GNFS) Act, 1997 (Act 537) re- established the National Fire Service to provide for the management of undesired fires and to make provision for related matters. The objective of the Service is to prevent and manage undesired fire. For the purpose of achieving its objective, the Service shall organise public fire education programmes to create and sustain awareness of the hazards of fire, heighten the role of the individual in the prevention of fire and provide technical advice for building plans in respect of machinery and structural layouts to facilitate escape from fire, rescue operations and fire management.	Fire incidents are common in Ghana and in the project area so the Fire Service will be engaged to provide education/ sensitization on fire prevention and fighting as part of the overall project implementation
22	**Fire Precaution (Premises) Regulations, 2003 (LI1724)** The Fire Precaution (Premises) Regulations 2003 (LI 1724) requires all premises intended for use as workplaces to have Fire Certificates	Fire certificates will be obtained for the processing facilities.

No	Legal Framework and Key Compliance Requirement	Applicability to Proposed project
23	Land Act, 2020 (Act 1036) The Land Act was enacted to ensure sustainable land administration and management, as well as effective and efficient land tenure. The law also seeks to establish a broad-based framework for registering land rights and interest including customary land right and enhance transparency and accountability in land governance	The PCU will ensure that land to be used for civil works is documented properly and in transparent manner. A voluntary land donation document will be completed by relevant landowners and the project

2.1.4 National Standards

The EPA through the Ghana Standards Authority has issued formal standards on discharge of emissions into the external environment. Table 2.2 below shows the applicability of national standards to the propose sub-projects.

Table 2.2 Applicable National Standards

No.	Standard	Applicability
1	**Ghana Standard for Environmental Protection - Requirements for Effluent Discharge (GS1212, 2019)** Ghana Standard for Environmental Protection - Requirements for Effluent Discharge (GS1212, 2019); specifies requirements for sector specific effluent quality and also gives guideline discharge into the environment.	Waste particularly from mini processing facilities will be managed as specified in the proposed ESMP
2	**Ghana Standards for Environment and Health Protection - Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236, 2019)** Ghana Standards for Environment and Health Protection - Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236, 2019) specifies the requirements and methods of analysis for ambient air. It also specifies the requirements and test methods for point source or stack emissions based on the sources of energy.	Dust and vehicular emissions will be controlled as specified in Chapter five of the ESMP.
3	**Ghana Standards for Health Protection - Requirements for Ambient Noise Control (GS 1222, 2018)** Ghana Standards for Health Protection - Requirements for Ambient Noise Control (GS 1222, 2018) specifies the requirements for acceptable ambient noise levels within	Noise generated at both the construction and operation stages will be monitored as stated in

	categorized locations. According to the Standards, the test method should be in accordance with the relevant test methods given in GS 1253:2018 (Acoustics- Guide for the measurement of outdoor A-weighted sound levels	Chapter five of the ESMP to ensure it does not exceed acceptable limits.
4	**Ghana Standards for Environment and Health Protection - Requirements for Motor Vehicle Emissions (GS1219, 2018)** Ghana Standards for Environment and Health Protection - Requirements for Motor Vehicle Emissions specifies the requirements for exhaust emissions of motor vehicles as well as tractors, farm equipment, mobile industrial /construction machines (such as excavators)	Vehicles for transportation of materials and workers will produce fumes but will be managed with regular maintenance as stipulated in chapter five of the ESMP.

2.2 INSTITUTIONAL FRAMEWORK

2.2.1 Ministry of Environment, Science, Technology and Innovation

The Ministry is the parent ministry that oversees the activities of the EPA and is responsible for formulating policies aimed at safeguarding the country's environment and ensuring accelerated socio-economic development of the nation through the formulation of sound policies and a regulatory framework to promote the use of appropriate, environmentally friendly, scientific and technological practices and techniques. Specific medium-term objectives include:

- Intensification of the application of safe and sound environmental practices
- Development and promotion of a science and technology culture at all levels of society; and Strengthening of compliance of human settlements standards in communities.

The Ministry is the implementing agency for the land restoration option being represented by the EPA and serves as the co-chair to the Project Steering Committee.

2.2.2 Environmental Protection Agency

The EPA is a statutory body mandated to deal with environmental protection and regulation of environmental issues and related functions, and is also an implementing Agency for the GLRSSMP. The EPA coordinates other beneficiary agencies who are part of the implementation of the landscape restoration component and is the main proponent of these subprojects.

2.2.3 Wildlife Division of Forestry Commission

The Wildlife Division (WD) is one of the three divisions of the Forestry Commission, and is a beneficiary agency under the GLRSSMP. The mission of WD is to ensure conservation, sustainable management and development of Ghana's wildlife resources for socio-economic benefit to all segments of society. It has the mandate to conserve wildlife in Ghana in general and manage wildlife protected areas in particular

within representative ecological zones of the country. The Division will manage the staff quarters and dugouts that will be constructed in the wildlife corridor through the CREMAs and Estates Unit.

2.2.4 Directorate of Crop Services (Ministry of Agriculture)

The Directorate of Crop Services is a beneficiary agency under the GLRSMMP and will be responsible for the management of drying platforms to be constructed in the agricultural landscape. Activities are carried out through the various beneficiary Department of Agriculture. The management of the infrastructure will be done through the community based established structure i.e. Community Watershed Management team with technical support from the District Watershed Planning Committee.

2.2.5 Metropolitan, Municipal and Districts Assemblies (MMDAs)

The Local Governance Act 2016, (Act 936) charge the District Assemblies to exercise political and administrative authority, provide guidance and give direction to the district. The district is responsible for the development, improvement and management of human settlements and the environment in the district. The mandate to execute and monitor approved development plans and assess and evaluate its impact on the people's development, the local, district and national economy rest on the district authorities

The area of land owned by the state according to the Land Use and Spatial Planning Act (2016) Section 46, "… shall be a planning area and subject to the planning system provided under this Act and other relevant laws." However, the power to approve the undertaken is vested in the relevant local government authority by virtue of the Local Government Act, 2016, (Act 936).
The Act 936 mandates the assembly to take charge for the overall development of their respective areas through Department of Physical Planning.

2.2.6 Relevant World Bank Environmental and Social Standards

The World Bank through the development of its Environmental and Social Framework (ESF) set out standards to be applied to an investment. The ESF replaces the former operational policies that guided project implementation. The ten Environmental and Social Standards (ESSs) set out the obligations that a project must comply with throughout its life cycle. Among these, eight (8) are triggered by the project and they are discussed below:

ESS 1-Assessment and management of environmental and social risks and impacts: it calls for an environmental and social assessment that is proportionate to the risks and effects of the Projects to ensure that the Projects are environmentally and socially viable and sustainable. This assessment will serve as a basis for Project design and will help to identify mitigation measures and actions and improve decision-making.

ESS 2-Labour and working conditions: It advocates, within the framework of the jobs created by the Project, inter alia, to encourage fair treatment and equal opportunity, to prevent the use of forced and child labour, to protect and secure Project workers, especially those who are vulnerable such as women, disabled persons, etc., and to ensure that the Project can meet the requirements of the ESS2.

ESS 3-Rational Use of Resources, Prevention and Management of Pollution: This standard recognizes that economic activity is often the source of air, water and soil pollution and depletes already limited resources. It calls for 1- Promoting the sustainable use of resources, including energy, water and raw materials; 2- Avoiding or minimizing the adverse effects of the Project on human health and the environment by avoiding or minimizing pollution from Project activities; 3- Avoiding or minimizing emissions of short- and long-lived air pollutants associated with the Project; 4- Avoiding or minimizing the generation of hazardous and non-hazardous waste.

ESS 4-Community health and safety of the population: It addresses the risks and effects of the Project on the health, safety and security of Persons Affected by the Project (PAPs), and the Proponent's responsibility to avoid or minimize these risks and effects, with particular attention to vulnerable groups. The proponent is responsible for "1-Preventing or avoiding adverse effects on the health and safety of people affected by the Project throughout the Project, whether in normal or exceptional circumstances; 2- Encouraging the consideration of quality and safety considerations and climate change issues in the design and construction of infrastructure, including dams; 3- Avoid or minimize community exposure to risks related to Project traffic and road safety, diseases and hazardous materials; 4- Implement effective measures to deal with emergency situations; 5- Ensure that the protection of personnel and property avoids or minimizes risks to communities affected by the Project".

▪

ESS 5-Land acquisition, land use restrictions and involuntary resettlement: which is the standard of reference in the event of physical or economic displacement necessitated by the Project. ESS 5 advocates the avoidance or, failing that, the minimization of physical or economic displacement through a rigorous and careful study of the various Project design options. Where displacement cannot be avoided, ESS 5 provides the mechanisms for carrying out the process in a participatory manner with a view to achieving peaceful, sustainable and mutually acceptable resettlement and compensation solutions. It also states that displaced populations should receive "prompt compensation for the replacement cost of their property" and that the Project should "help displaced persons to improve, or at least restore in real terms, their livelihoods and standard of living prior to their displacement or prior to the commencement of Project implementation". ESS 5 also provides for handling instances of land acquisition where people or communities willingly donate a portion of their land for project purposes, for no compensation or reduced compensation. Voluntary land donations may involve some monetary or nonmonetary benefits or incentives provided to the land donor by the project or by community members benefiting from a project. Both can be broadly classified as a voluntary land donation, because the transfer of assets takes place without payment of compensation at replacement value. Such situations will be considered subject to the

World Bank's Voluntary Land Donation Protocol and prior Bank approval. In any case, the following conditions and requirements, as foreseen in ESS5, should be verified, demonstrated and documented:

- The potential donor or donors have been appropriately informed and consulted about the project and the choices available to them;
- Potential donors are aware that refusal is an option, and have confirmed in writing their willingness to proceed with the donation;
- No household relocation is involved;
- The donor is expected to benefit directly from the project; and
- For community or collective land, donation can only occur with the consent of individuals using or occupying the land.
- All family members (including spouses) must be aware of the donation, in order to minimize the risks of women users of the land to be donated being passed over in decision-making on land donation and the risks of cross-generational conflicts being avoided.
- Individuals using or occupying community or collective lands must also be aware of the donation to minimize risks of settlers or migrants being passed over in decision-making on land donation.
- The PCU establishes that the land to be donated is free of encumbrances and encroachment and registers the donated land in an official land registry (i.e., the Lands Commission in this case)
- Any donated land that is not used for its agreed purpose is returned to the donor by the PCU in collaboration with the Lands Commission. The PCU will decide, when necessary, whether the land donated is no longer needed for the intended purpose of the project.
- A transparent record of all consultations and agreements reached is kept by the PCU.
- There is documentation of the land indicating clearly, the size, the location/situated, and signatories of the parties (consent).

ESS6-Biodiversity conservation and sustainable management of living natural resources - recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support. Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. All habitats support complexities of living organisms and vary in terms of species diversity, abundance and importance.

ESS 8 Cultural heritage: to be considered if a cultural heritage site is present in the Project area. It sets out general requirements relating to the consideration of cultural heritage as an "integral aspect of sustainable development", and its protection (both tangible cultural heritage, such as natural elements, and intangible cultural heritage such as beliefs, traditions, practices, representations, skills, etc.). Cultural heritage will need to be identified and inventoried through in-depth consultations with communities. Its protection during both the construction and operational phases must be a priority of any Project.

ESS 10: Stakeholder Engagement and Information Disclosure: This standard recognizes the importance of open and transparent collaboration between the Borrower and Project stakeholders as an essential element of good international practice. It is recommended that: 1- Establish a systematic approach to identifying and mobilizing stakeholders that will enable a constructive relationship to be established and maintained with them, particularly those affected by the Project; 2- Assess the level of interest and commitment of stakeholders and allow their opinions to be taken into account in the design of the Project and its environmental and social performance; 4- Ensure that stakeholders receive timely, understandable, accessible and appropriate information on the Project's environmental and social risks and effects

3.0 DESCRIPTION OF SUB-PROJECTS

3.1 DESCRIPTION OF PROPOSED SUB-PROJECTS

The proposed small community and infrastructure (civil works) aims to strengthen integrated natural resource management and increase benefits to communities in targeted northern savannah ecological specifically, it will improve access to water and watering of wild animals and livestock, the shelf life of agricultural products and income to contribute to the development of the national parks and socio-economic benefits of surrounding communities of the parks and agricultural communities

The proposed small community infrastructure (civil works) include the following:

- Two-room semi-detached living quarters for FSD/WD staff to support management of the East Wildlife Corridor and Six FRs. Only two of such blocks will be constructed in Bawku, Upper East region.
- Construction of dugouts in selected communities in the Upper East, North East and Upper West Regions
- Construction of post-harvest infrastructure mainly crop drying platforms and mini shea and groundnut processing facilities.

3.2 DESCRIPTION OF PROPOSED SUB-PROJECTS' COMPONENTS AND LOCATIONS

The proposed infrastructure will be located in communities in the Sissala East, Sissala West, Daffiama-Bussie-Issa, and Wa East districts, all in the Upper West Region, Mamprusi-Moagduri district in the North East Region; and Builsa South, Bawku West and Nabdam districts in the Upper East Region

The sites/communities, the locations and the geographical coordinates for the proposed small community and Fringe Communities Infrastructure projects in the North East, Upper East and Upper West Regions are as presented in the Table 3-1 below. Figure 1 also shows a map of the geographical distribution of the proposed infrastructure projects.

Table 3.1 Locations of the Sub-projects

District	Community/ Location	Type of Facility	GPS Coordinates	
			Lat.	Long
UPPER WEST REGION				
Sissala East	Sakalu	Optimized Dugout	10.68147	-02.052976
Sissala East	Sakalu	Processing plant -shea	10.67889	-02.032034
Sissala East	Kuroboi	Optimized Dugout	10.585936	-1.867608
Sissala West	Jitong	Optimized Dugout	10.981603	-02.118179
Sissala West	Bullu	Processing plant - Shea	10.874615	-02.264169
Sissala West	Dassima	Optimized Dugout	10.642904	-02.235076
Daffiama-Bussie-Issa	Kojopere	Optimized Dugout	10.364869	-02.229402

District	Community/ Location	Type of Facility	GPS Coordinates	
			Lat.	Long
Wa East	Funsi	Optimized Dugout	10.270705	-01.981773
Wa East	Viaha	Optimized Dugout	10.019899	-02.280705
Wa East	Saggu	Optimized Dugout	09.881560	-02.323517
Wa East	Bonaa	Processing Plant-shea	09.897994	-02.284412
Wa East	Chassia	Optimized Dugout	09.735930	-02.119591
Wa East	Suma	Processing plant	09.466383	-02.327542
UPPER EAST REGION				
District	**Community/ Location**	**Type of Facility**	**GPS Coordinates**	
			Lat.	**Long**
Builsa South	Musidema	Optimized Dugout	10.4916N	1.3880W
Builsa South	Gbedemblisi	Optimized Dugout	10.3278N	1.2481W
Bawku West	Tilli	Staff Quarters for FSD & WD staff	10.8774N	0.5822W
Bawku West	Sheiga	Mini Shea Processing Plant	10.7591N	0.5078W
Bawku West	Kusanaba	Optimized Dugout	10.7603N	0.4908W
NABDAM	Nangode	Optimized Dugout	10.8525N	0.6579W
NORTH EAST REGION				
Mamprugu-Moagduri	Kubori	Drying Platform	10.2268N	1.2841W
Mamprugu-Moagduri	Tantala	Optimized Dugout	10.2071N	1.5383W
Mamprugu-Moagduri	Dabozesi	Optimized Dugout	10.1979N	1.5142W
Mamprugu-Moagduri	Jadema	Processing facility-shea	10.3297N	1.1583W

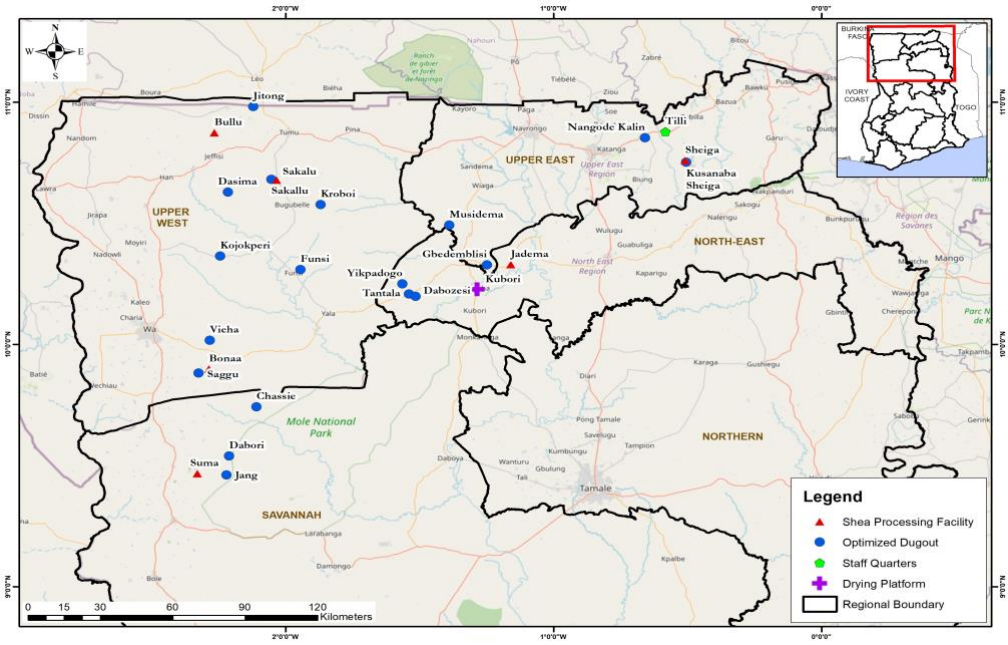


Figure 3.1: Geographical Distribution and location of the proposed facilities.

3.3 DESCRIPTION OF SUB-PROJECTS

3.3.1 Dugout

A total of fifteen (15) dugouts will be constructed. The dugouts will be designed to have the minimum depth required to render a water point permanent and can vary according to its size, geology and topography. But for small to medium sized water points the depth must be at least 4meters to support the loss of depth and volume due to seepage and evaporation and consumption by animals that will converge around the water hole. A residual depth of at least 50 cm is required in order to avoid the growth of algae that renders the water unwholesome for animals at the end of the dry season. The dugouts will be the optimized type. "Optimized" dugouts in community areas provide the most cost efficient structure for water supplies and adequate for multiple community uses such as cattle watering, fishing and/or gardening, where the full potentials of given sites can be attained through the use of relatively low but wide bulldozer-packed dikes to impound and send the outlet flow over a laterite shield lining the drainage that can serve as a natural and inexpensive and anti-erosion structure. Table 3.2 and 3.3 indicates the drainage characteristics of the proposed dugouts using average raining season flows of 5, 20 and 15 years peak flows have been calculated for the Sakalu proposed site.

Figures 3.1a and 3.1b longitudinal profile of Sakalo Community Optimized Dugout and Cross-section at the lowest point of the drainage respectively of the selected model of the dugout to be constructed.

Table 3.2 Volume Calculation for Sakalu Dugout

Volume Calculations for site of:			**Sakalu**										
Partial Distance	Natural Ground Elevation	Cumul Distance	Crest Height	Crest Width	Dike Height	Down stream Length	Up	Volume Downstream Bank	Volume Upstream Bank	Volume Bank	Area Downstream Bank	Area Upstream Bank
0	3.88	0.00	5.13	3.50	1.25	2.5	3.75					
57	3.18	57	5.13	3.50	1.95	3.9	5.85	145.92	218.88	319.2	20 3.9294	288.3997
11	2.60	68.00	5.13	3.50	2.53	5.06	7.59	55.1936	82.7904	86.24	55.09671	77.91852
13	1.18	81	5.13	4.00	3.95	7.9	11.85	136.4688	204.703	168.48	94.18318	133.1951
12	0.48	93.00	5.13	4.00	4.65	9.3	13.95	221.88	332.82	206.4	115.3811	163.1735
10	0.68	103	5.13	4.00	4.45	8.9	13.35	207.025	310.538	182	101.7411	143.8836
2	0.00	105	5.13	4.00	5.13	10.26	15.39	45.8882	68.8323	38.32	21.42153	30.29462
2	0.53	107	5.13	4.00	4.60	9.2	13.8	47.33645	71.0047	38.92	21.75694	30.76896
12	1.13	119	5.13	4.00	4.00	8	12	221.88	332.82	206.4	115.3811	163.1735
23	1.28	142	5.13	4.00	3.85	7.7	11.55	354.3294	531.494	361.1	201.861	285.4746
25	1.40	167	5.13	4.00	3.73	7.46	11.19	359.1025	538.654	379	211.8674	299.6258
11	3.13	178	5.13	4.00	2.00	4	6	90.29048	135.436	126.06	70.46968	99.65918
17	4.51	195	5.13	3.50	0.62	1.24	1.86	29.1737	43.7606	77.945	49.79723	70.42392
42	4.21	237	5.13	4.00	0.92	1.84	2.76					
3	3.98	240	5.13	4.00	1.15	2.3	3.45					
26	4.63	266	5.13	4.00	0.50	1	1.5					
								1 914	2 872	2 190	1 263	1 786
								TOTAL DIKE VOLUME (m3) **6 976**			SLOPES AREA (m2) **3 049**	

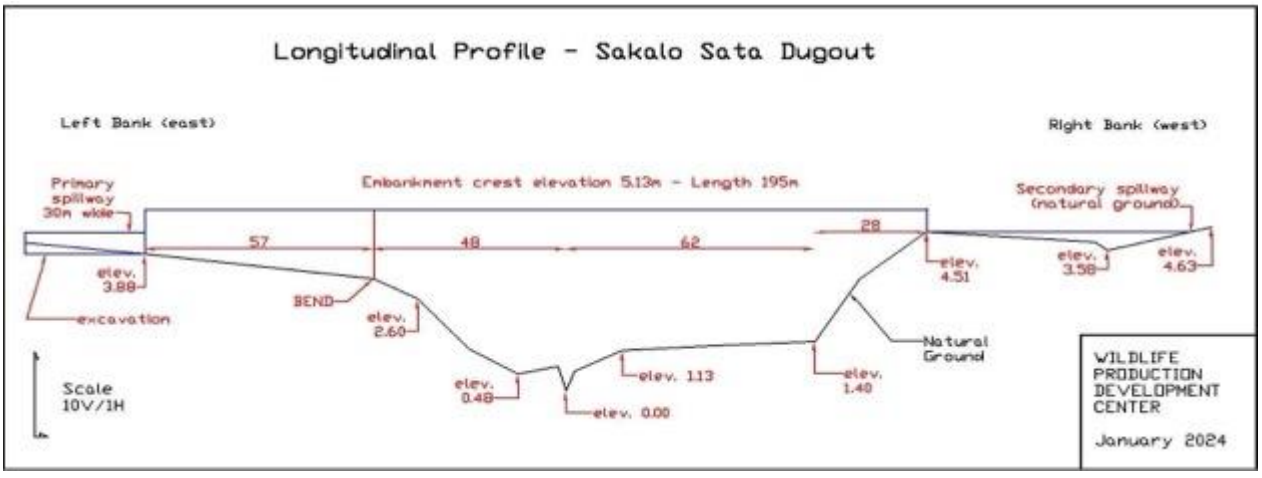


Figure 3.2a Longitudinal profile of Sakalo Community Optimized Dugout

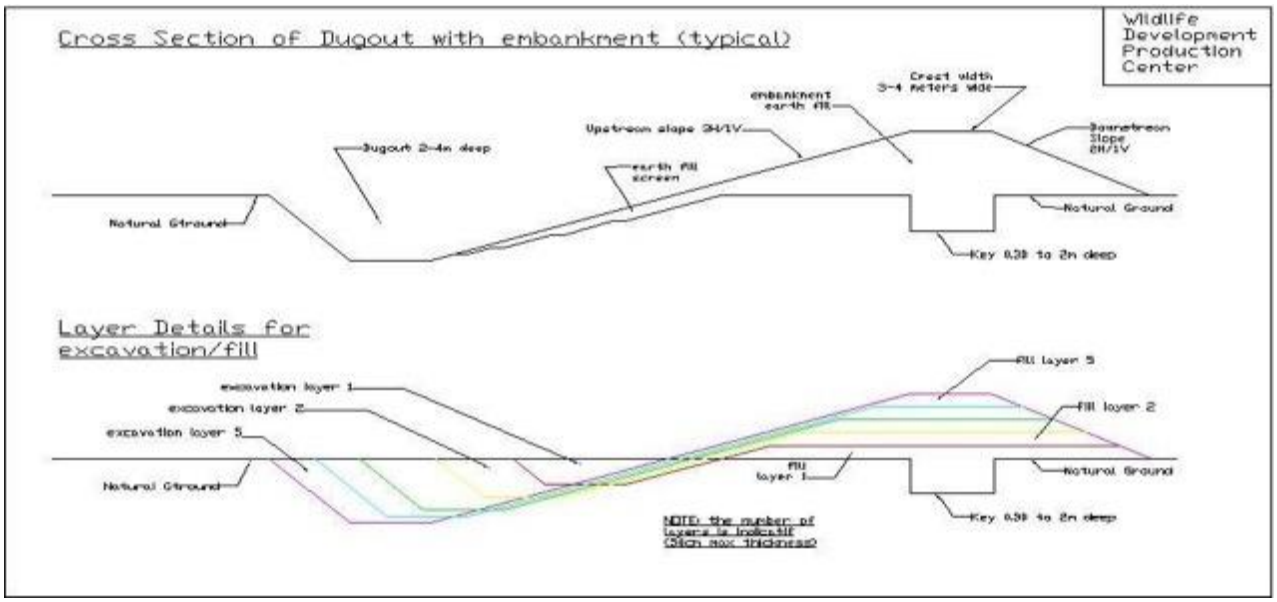


Figure 3 2b Cross-section at the lowest point of the drainage

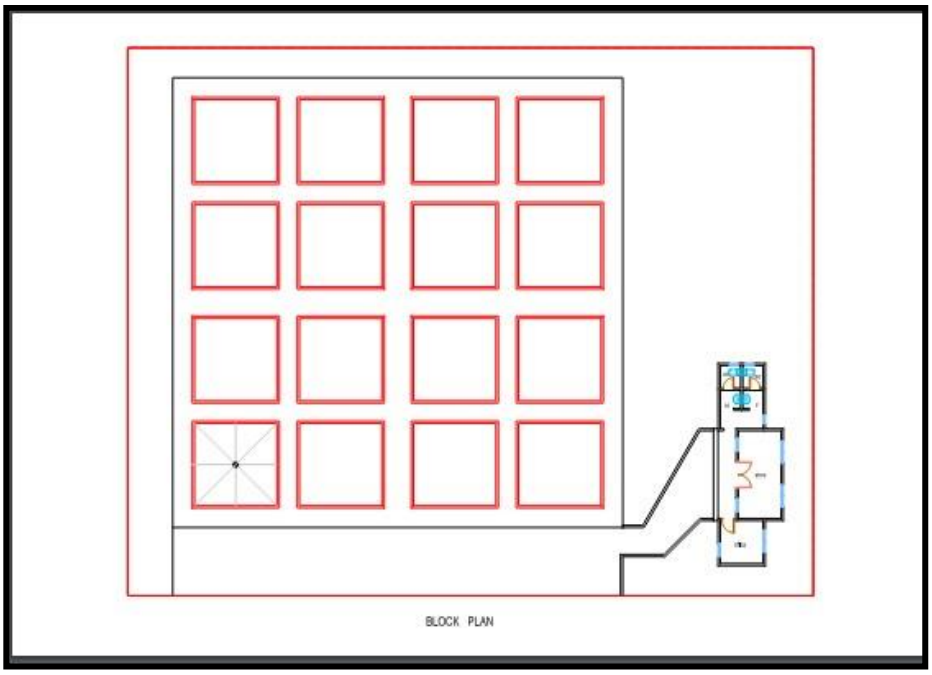
Table 3.3 Volume Calculation for Sakalu Sata Dugout

RETAINED WATER ESTIMATION FOR DUGOUT SITE:			**Sakalu Sata**									
Average stream slope (google earth) elevation 287m-290m distance 360m = 8.33/1000												
Full Water elevation = 3.88m												
			3.88	Slice 1 slope	0.00833	Slice 2 slope	0.0083	Slice 3 slope	0.008	Slice 4 slope	0.01	Slice 5 slope 0.01
				Slice 1 length	100	Slice 2 length	100	Slice 3 length	100	Slice 4 length	100	Slice 5 length 100
Partial Distance	Natural Ground Elevation	Water height at dike	Water height end slice	Slice Volume	Water height end slice	Slice Volume	Water height end slice	Slice Volume	Water height end slice	Slice Volume	Water height end slice	Slice Volume
0	3.88											
57	3.18	0.7	0	997.5	0	0	0	0	0	0	0	0
11	2.60	1.28	0.447	667.333	0	122.83	0	0	0	0	0	0
13	1.18	2.7	1.867	2045.33	1.033	1087.7	0.2	400.8	0	65	0	0
12	0.48	3.4	2.567	3160	1.733	2160	0.9	1160	0.0667	350	0	20
10	0.68	3.2	2.367	2883.33	1.533	2050	0.7	1217	0	417	0	16.7
2	0.00	3.88	3.047	624.667	2.213	458	1.38	291.3	0.5467	131	0	27.3

2	0.53	3.35	2.517	639.667	1.683	473	0.85	306.3	0.0167	140	0	28.2
12	1.13	2.75	1.917	3160	1.083	2160	0.25	1160	0	335	0	5
23	1.28	2.6	1.767	5194.17	0.933	3277.5	0.1	1361	0	201	0	0
25	1.40	2.48	1.647	5308.33	0.813	3225	0	1154	0	62.5	0	0
11	3.13	0.75	0	1341.08	0	676.5	0	223.7	0	0	0	0
17	4.51	0	0	318.75	0	0	0	0	0	0	0	0
42	4.21											
3	3.98											
26	4.63											
Total water per slice				26 340		15 691		7 274		1 701		97
TOTAL WATER LAKE			**51 103**									

3.3.2 Crop Drying Platform (Kubori)

The platform will be made of concrete floors with a total perimeter of 400ft. It will be divided into 16 compartments/paddocks with each one measuring 25ft x25ft. It will be designed to have a canopy to be used in case of rain or during the night. The canopy will be made of metal stands and removable trampoline material. Figures 3.3a and 3.3b shows the block plan and 3D model respectively of the proposed drying platform.



Source: Tekton Consult, June 2024

Figure 3.3a Block Plan of the drying platform

Source: Tekton Consult, June 2024

Figure 3.4b The drying platform -3D Model

3.3.3 Processing Facilities

The Mini Processing facilities will be designed as a building furnished with the processing facility. The facility will be multi-purpose, and can be used for both groundnut and shea. The facilities will be powered by electricity. An artistic impression of the facility is attached to this report. The Block plan and the 3D model of the proposed mini sheanut/Dawadawa processing facilities are presented below in Figures 3.3a, 3.3b. 3.4a and 3.4b. Figures 3.5a, 3.5b, 3.6a and 3.6b also shows the Block plan and 3D model of the proposed Mini Gari Processing plant.

Source: Tekton Consult, June 2024

Figure 3.5a Mini Sheanut/Dawadawa Processing Plant- Block Plan

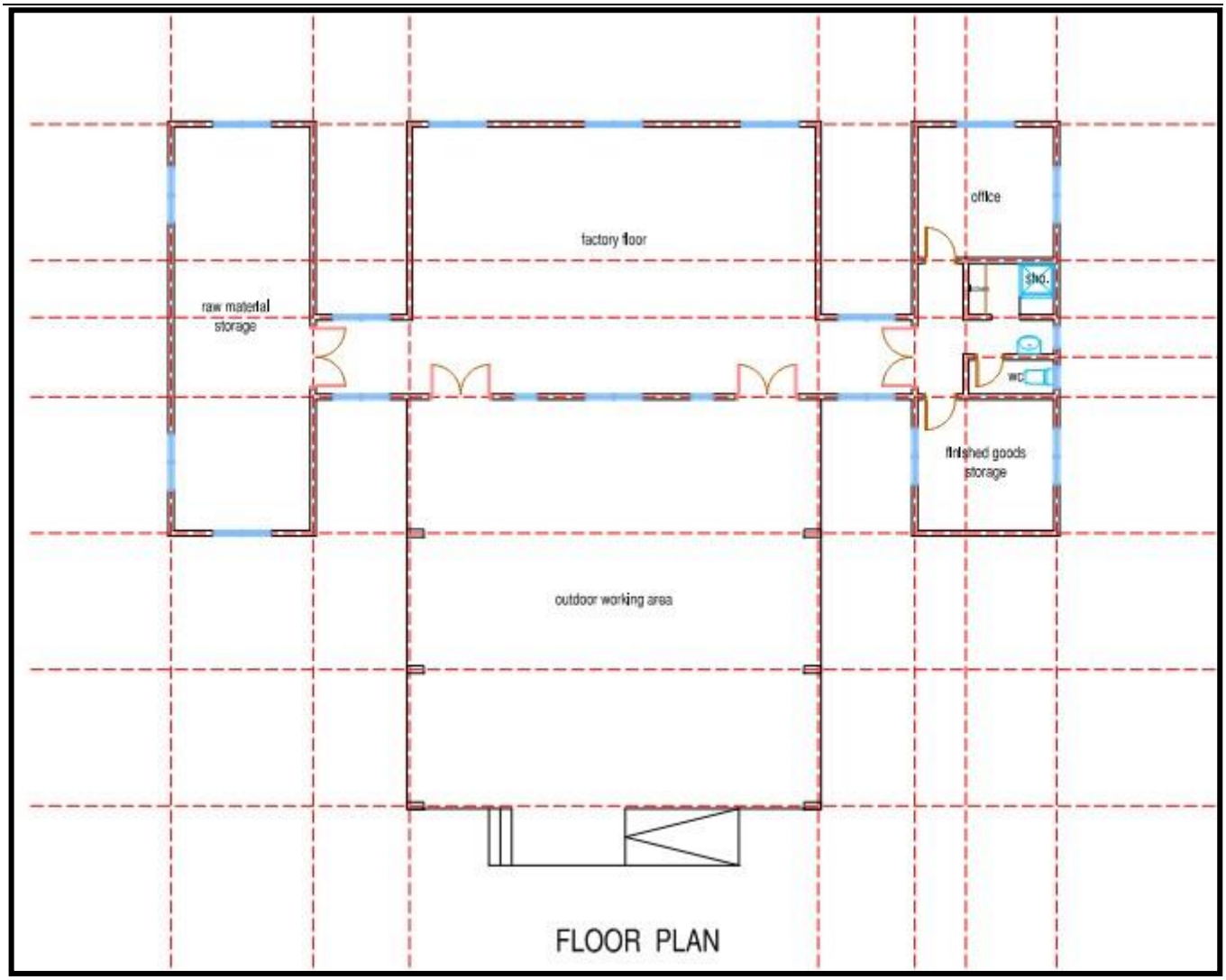


Figure 3.5b Mini Sheanut/Dawadawa Processing Plant- Floor Plan

Figure 3.6a Mini Sheanut/Dawadawa Processing Plant- 3D-Front View

Source: Tekton Consult, June 2024

Figure 3.6b Mini Sheanut/Dawadawa Processing Plant- 3D-Back View

3.3.4 Mini Gari Processing Plant

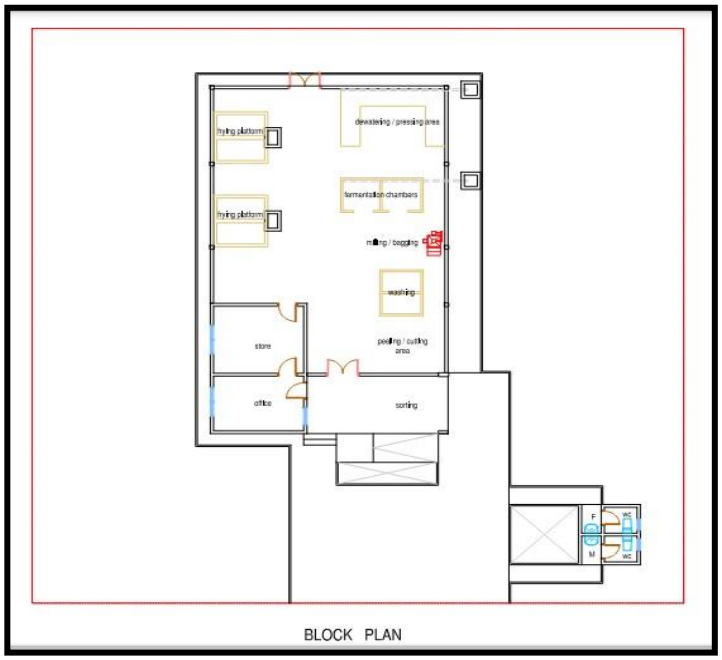
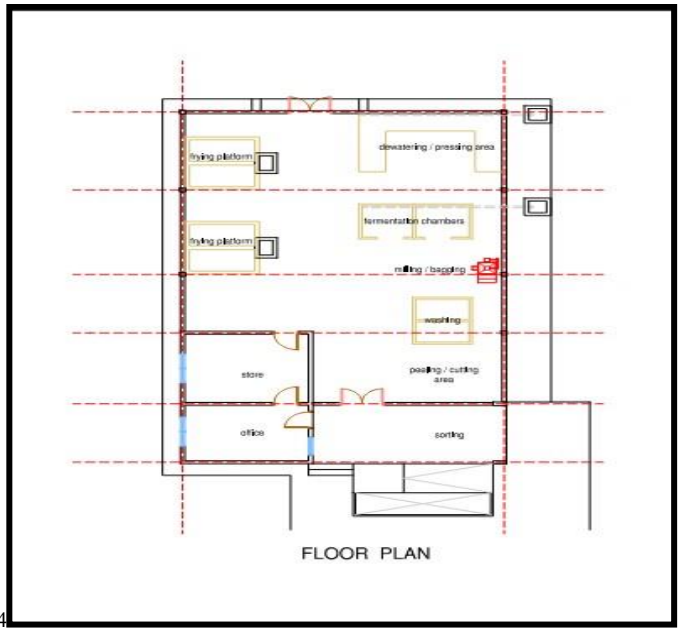


Figure 3.7a Mini Gari Processing Plant-Block Plan



Source: Tekton Consult, June 2024

Figure 3.7b Mini Gari Processing Plant-Floor Plan

Source: Tekton Consult, June 2024

Figure 3.8a: Mini Gari Processing Plant-3D Front View

Figure 3.8b Mini Gari Processing Plant-3D Back View

Source: Tekton Consult, June 2024

3.3.5 Staff Quarters

The two room semi-detached staff quarters will provide a decent accommodation for the staff of WD and FSD. It will have a kitchen and washroom for each room making it a studio type accommodation. Figures 3.7a, 3.7b and 3.7c shows the Block plan and 3D model of the FSD/WD Staff Quarters.

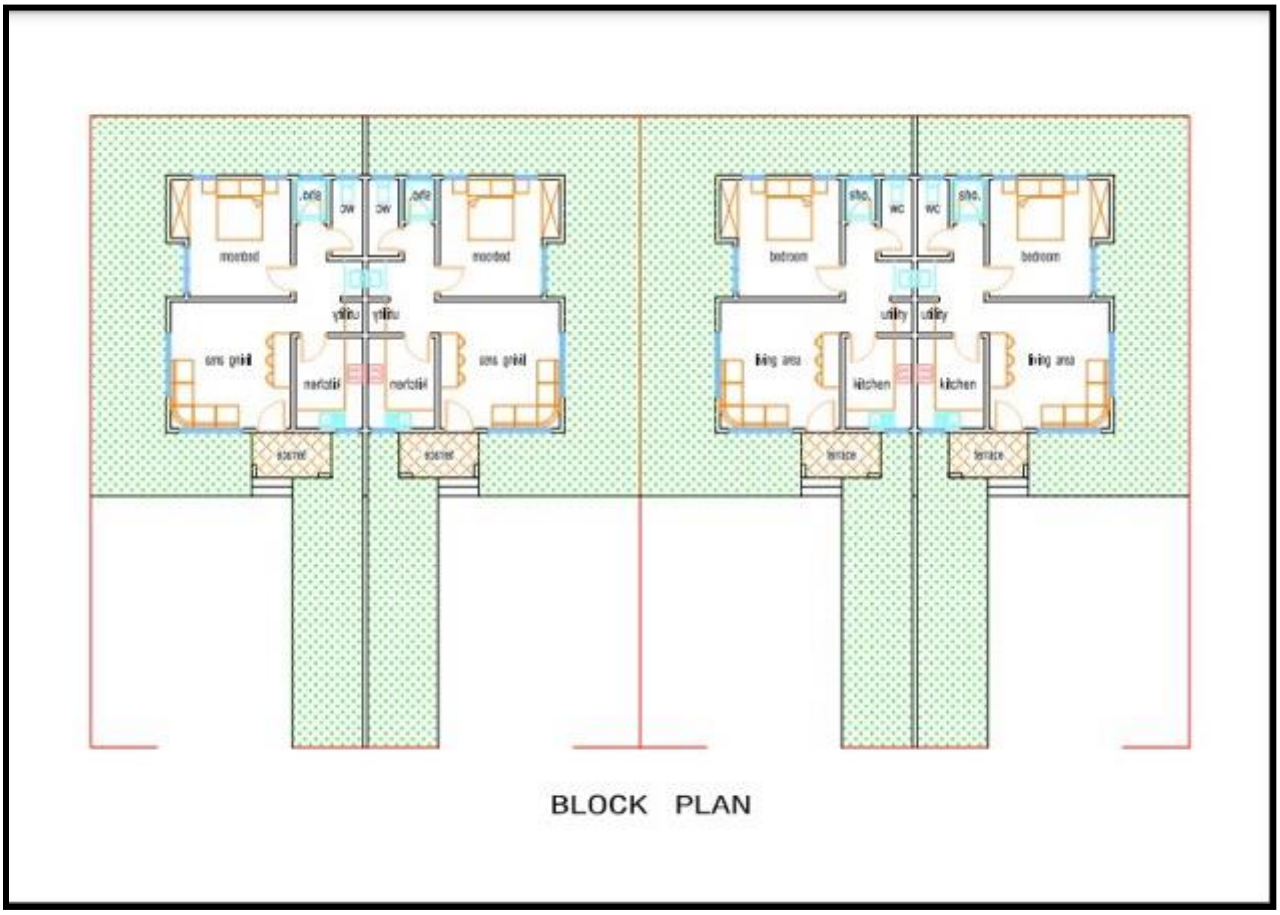


Figure 3.9a FSD/WD Staff Quarters-Block Plan

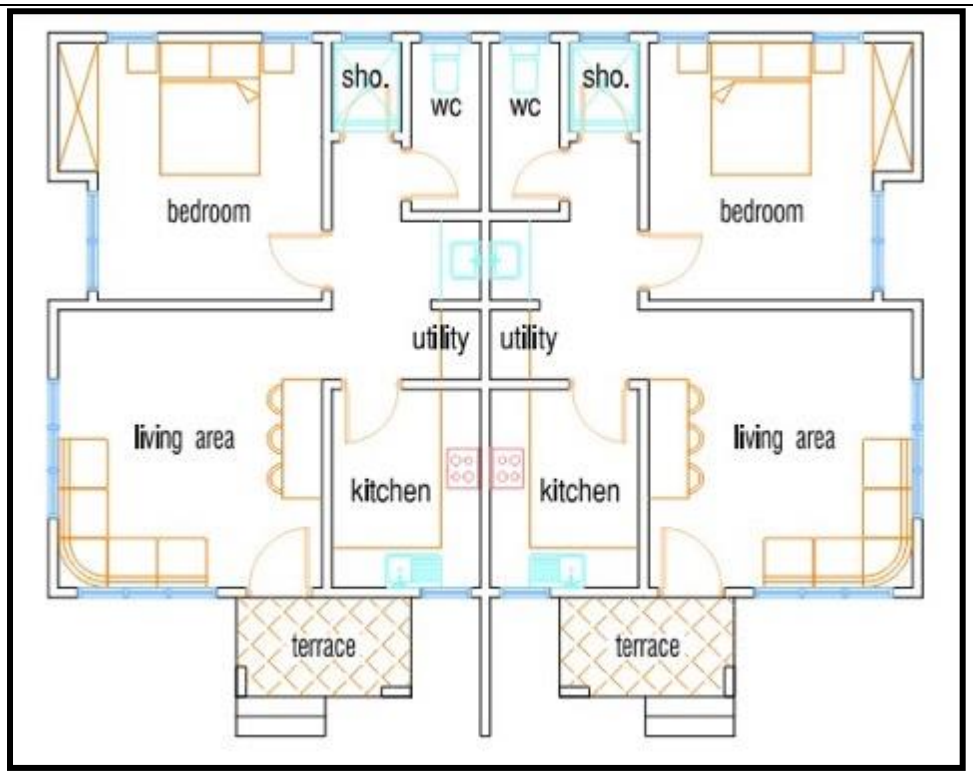


Figure 3.9b FSD/WD Staff Quarters-Block Plan

Source: Tekton Consult, June 2024

Figure 3.9c: FSD/WD Staff Quarters-3D

Source: Tekton Consult, June 2024

3.4 RAW MATERIALS AND THEIR SOURCES

As much as possible, raw materials for the construction especially the drying platforms and mini-processing facilities will be sourced locally. Materials will be sourced from outside the country only when they are not available within the community or anywhere in Ghana. Key raw materials that would be used for the construction of the infrastructure projects shall include; sand, iron rods, gravel, stone, etc. Sand, gravel and stone aggregates shall be procured only from approved sources as represented in the table below.

Table 3.4 Raw materials and their sources

Raw Materials	Potential Sources (locations / names of companies	Zoning Status of locations	Status of Compliance	Estimated Quantities
Sand	Nearby sources	Industrial	Will be a licensed site	NA
Iron rods	Local market	NA	NA	NA
Gravel	Nearby areas	Industrial	Will be a licensed site	NA
Stones	Nearby areas	Industrial	Will be a licensed site	NA

3.5 LABOR FORCE

Labour will be sourced from within the beneficiary community and its surrounding communities to facilitate the construction of all infrastructure. Recruitment of labour and their welfare will be done in line with the Labour Act, 2003 (Act 651) taking into account relevant provisions of the Children Act, 1998 (Act 560) and the ESS 2 on Labour and working conditions. Labor will be recruited outside the community only when they are not available locally. It is an offence to sexually abuse a fellow worker or somebody within the community. Employees of contractors so selected shall be required to sign on to Code of Conduct (CoC) that explicitly include expectations and consequences for GBV/SEA/SH-related misconduct. Each civil work is estimated to employ a minimum of 33 workers and details are provided in the table below

Table 3.5 Roles and Estimated Manpower

Description/Labour	Number of workers
Project Engineer	1
Foreman	1
Health and Safety	1
Labour (skilled)	5
Labour (unskilled)	25
Total	33

4.0 BASELINE INFORMATION

This section describes the civil works environment and social context. The baseline data were collected from various secondary sources as well as from primary sources, such as from consultations with local government officials, local people and also from first hand, personal observation during site visits.

The baseline information covering the affected environment encompasses two agro-ecological zones; Guinea savannah and Sudan savannah which is commonly called northern savannah (covers Upper East, Upper West, and Northeast regions).

4.1 SITE DESCRIPTION, ADJOINING LAND USES AND ZONING

In rural Ghana, where vacant community land is often available, it is customary for community leaders to voluntarily donate land to support state-funded development projects. Under the GLRSSMP, this tradition of community support has been extended to facilitate the implementation of sub-projects covered by this ESMP. As a result, the project proponent will not need to acquire land for any of the considered sub-projects.

To comply with the requirements of ESS 5 regarding Voluntary Donated Lands (VLDs), the project proponent has developed templates for documenting these land donations for each sub-project. The template includes several important considerations, such as confirming that no households will be relocated as a result of the donation, providing information to the beneficiary communities about the donation, and obtaining confirmation from community leadership regarding the donation.

The description of the proposed project sites, adjoining land uses, zoning and land requirements for the various civil works are as presented in the table 4-1 below:

Table 4.1: Characteristics of Proposed Sites

S/N	Site/ Community	District	Proposed Subproject	Site Characteristics	**Size of land for sub-project**	No of trees to be felled / cleared	Adjoining land uses				
							North	South	East	West	
3	Chasia	Wa East	Dugout-livestock watering (Progreen)	The site is generally flat with some shrubs	1.5 acres	0	Undeveloped land	Undeveloped land	Undeveloped land	Undeveloped land	
4	Saggu	Wa East	Dugout Livestock watering (Agric landscape)	The site is undulating; covered with some trees	1.5acres	2	Kolumpio stream	Undeveloped land	Undeveloped land	Undeveloped land	

S/N	Site/ Community	District	Proposed Subproject	Site Characteristics	**Size of land for sub-project**	No of trees to be felled / cleared	Adjoining land uses				
							North	South	East	West	
5	Vieha	Wa East	Processing facility	The site has an existing old mosque that is not in use	50m X 60m	0	Residence (50m)	Undeveloped land	Residence (55m)	Road	
6	Dassima	Sissala West	Dugout-livestock watering (Progreen)	The site is generally flat and drained by the Churu Stream	2.0 acres	0	Undeveloped land	Undeveloped land	Undeveloped land	Undeveloped land	
7	Jitong	Sissala West	Dugout Livestock watering (Agric landscape)	The site is flat with some shrubs	2.0 acres	0	Undeveloped land	Farmlands	Farmlands	Undeveloped land	
8	Bullu	Sissala West	Processing facility	The land is flat with sparse vegetation	80m X 70m	0	Undeveloped land	Undeveloped land	Undeveloped land	Undeveloped land	
9	Sakalu	Sissala East	Dugout Livestock watering (Agric landscape)	The site almost bare (some few trees) There are some creeks with little amount of water	2.0 acres	0	Shrubs	Shrubs	Shrubs	Shrubs	
10	Sakalu	Sissala East	Processing facility	The site is undeveloped with some shrubs	70m X60m	0	Church of Pentecost (55m)	Open space	Open Space	Road	
11	Kurobore	Sissala East	Drying platform	The land is generally flat	2.0 acres	10	Farmlands	Farmlands	Shrubs	Shrubs	
12	Nangode/ Eastern Wildlife Corridor/ CREMA Site	Nabdam	Dugout-livestock watering	The site is drained by the Akpenga stream	2.0 acres	10	Vegetation	Vegetation	Vegetation	Akpenga stream	
13	Kusanaba	Bawku West	Dugout-livestock watering (Progreen)	The site is bare with pockets of water collected	2.0 acres	0	Bare land with some vegetation	Shrubs	Shrubs	Shrubs	

S/N	Site/ Community	District	Proposed Subproject	Site Characteristics	**Size of land for sub-project**	No of trees to be felled / cleared	Adjoining land uses				
							North	South	East	West	
14	Sheiga	Bawku West	Processing facility	The site is undeveloped and has a well (not in use)	100m X 80m	0	School (100m)	Undeveloped land	Residence (Chief house)-50m	Undeveloped land	
15	Tilli	Bawku West	Staff Living Quarters	Bareland	2.0acres	4	Vegetation	Trees	Trees	Trees	
16	Tantala	Mamprugu Moagduri	dugout	The site is undeveloped with some shrubs	2.0 acres	4	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	
17	Daboziesi	Mamprugu Moagduri	shea processing facility	The site is undeveloped with some shrubs	70mx80m	3	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	
18	Jadema	Mamprugu Moagduri	shea processing facility	The site is undeveloped with some shrubs	70mx80m	5	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	
19	Tarikum	Bawku West	Drying Platform	The site is interspersed with trees and drained by the Akulaagaa stream	2.0 acres	5	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	Trees and Shrubs	
21	Gbedemblisi	Builsa South	Dugout Livestock watering (Agric landscape)	The site is bare	2.0 acres	0	Farmland	Roads	Undeveloped land	Undeveloped land	

4.2 NORTHERN SAVANNAH PHYSICAL ENVIRONMENT/ CHARACTERISTICS

4.2.1 Climatic Characteristics

The Guinea and Sudan Savanna zones are both characterized by a unimodal rainfall regime lasting from April to October, although mean annual rainfall is higher in the Guinea Savanna zone (1000-1200 mm), than in the Sudan Savanna (900-1000 mm) The period between November and March is dry and characterized by the desiccating harmattan winds, rendering the zone prone to bush fires. The mean annual maximum temperature ranges from 33°C to 35°C with a minimum of about 22°C.

4.2.2 Geology and Topography

The Upper West regions are underlain by granitoids of post Birimian age while the Upper East Region is underlain by sandstones, shales and limestones of the Voltaian system (characterised by reddish coarse-grained conglomeratic sandstones) fringed at the west part by the post Birimian granitoids. The granitoids include granitic and gneissic rocks of grey colours and shades of pink. The gneisses are folded and also jointed with the rest of the formation. These rocks tend to be hard and less weathered due to the drier climatic conditions prevailing in the Northern Savanna Zone. There are two main physiographic regions recognisable in the zone viz. the Savanna High Plains and the Voltaian Sandstone Basin.

4.2.3 Hydrology

The Northern Savanna Zone is mainly drained by the White Volta and its tributaries Morago, Red Volta, Atankwindi and Asibelika in the Upper East Region, Kulpawn with its tributary, Sisili in the Upper West Region and the Black Volta, Nasia and Oti in the Northern Region. All the principal branches of the Volta flow permanently during the wet periods.
The Dassima project site is generally flat and drained by the Churu Stream. Nangode/Eastern Wildlife Corridor / CREMA site is drained by the Akpenga stream, while the Tarikum site is interspersed with trees and drained by the Akulaagaa stream. In the dry season the volume of water in the rivers of the two upper regions reduce considerably, breaking into pools or drying up at the peak of the dry period.

4.2.4 Forest and Protected Areas

There are 72 forest reserves (FRs) in the northern savannah. They range in size from 0.4km^2 to 1,116 km^2. However, many of these areas are under pressure from subsistence farmers, livestock herders and others who engage in illegal activities in the reserves. Mole National Park (Ghana's largest) and Gbele Resource Reserve are the only gazetted wildlife protected areas within the northern savannah landscape.

4.2.5 Flora

The area contains 1,519 vascular species known to be indigenous or naturalised. Six species including *Ceropegia gemmifera*, *Commiphora dalzielii*, *Ptleopsis habeensis* and *Eugenia coronta* are rare in Ghana and internationally. The Guinea Savanna consists generally of fire tolerant, deciduous, broad- leaved trees interspersed in a ground flora of mainly grass, sometimes more than 1.5m high.

4.2.6 Fauna

Savanna fauna comprises at least 93 mammal species, about half of which can be considered to be large ones, over 350 bird species, 9 amphibians and 33 reptiles. About 13% of the 860 recorded butterfly species in Ghana are associated with the savanna.

4.2.7 Socio-Cultural Environment

According to the Ghana Statistical Services, the population by region in 2019 of the three northern Savannah regions (which currently are five after-creations of two more regions, namely Northern, Upper East, Upper West, Savannah and North-East) stands at 5,184,994. The main ethnic groups in the project areas include the Dagombas, Mamprusis and Talensis in the North East Region, Dagaaba, Wali and Sisala in the Upper West Region, Builsa, Frafra, Kassena, Nankani, Grunnie, Nabdam and Kussasi in the Upper East Region. In all these ethnic groups, patrilineal inheritances is the norm and traditional authority is vested in the chief, who sits on a skin, an acknowledged symbol of identity of the group and authority.

The majority of people in the five northern regions are traditionally crop and livestock farmers, growing cereals, root and tubers and keeping livestock, mainly goats, cattle and sheep for subsistence and gain. Outside farming season activities include farm produce processing and marketing, livestock grazing and "pastoralling" and bush fire prevention. It is also common for farmers to engage in artisanal or small-scale mining as a means to diversify income opportunities. A smaller segment of the population engages in ASM activities and quarrying. Women engage in collection and processing of shea nuts for own consumption and sale.

4.2.8 Land tenure

Customary lands, which constitute about 80% of all lands in Ghana, are of three (3) regimes, namely: Stool lands, Skin lands and Family/Clan lands. In terms of distribution of these types of customary land across the sub-project areas, North East, Savannah and Upper East regions are predominantly Skin lands, while the Upper West region is predominantly Family/Clan lands.

Land ownership in each of these regions is defined along customary/ traditional area jurisdictions. For example, all the sub-project communities in the North East region are under the Mamprugu Kingdom, while those in the Savannah region are under the Gonja Kingdom. The Gonja and Mamprugu Kingdoms are superintended by Overlords, and while the Gonja Kingdom has 17 Paramount chiefs, the Mamprugu Kingdom has 33 Paramount chiefs. Each Paramountcy constitutes a traditional area, and each traditional area is headed by a Paramount Chief. Paramount Chiefs are therefore directly below the level of an Overlord in the traditional governance hierarchies. However, there are some variations in dynamics, due to the different histories, traditions, and leaderships of the different skins.

Overlords of the Gonja and Mamprugu Kingdoms are the custodians of the Allodial interest – the ultimate authority – in all the lands under their respective kingdoms. Unlike in Stool land ownership regime in southern Ghana, Paramount Chiefs here are semi-autonomous, given that they have reporting relationships to their Overlords, in respect of both community and land governance issues. Each traditional area may have several communities under them. The type of interest held by Paramount Chiefs in Gonja and Mamprugu may therefore be described as semi-Allodial, given the nature of authority they exercise on land in their respective jurisdictions.

Generally, traditional areas in Skin land jurisdictions may be divided into divisional areas or communities, depending on the size of the traditional area. Divisional Chiefs are below the level of the Paramount Chief in the hierarchy. Paramount Chiefs, in the discharge of their mandate, are supported by Divisional Chiefs directly below them. Where divisional areas are large, they may be subdivided into communities and a

Community Chief is appointed to oversee each community. Community Chiefs report to Divisional Chiefs on the discharge of their mandate. Where there are no divisional areas within a traditional area, then Community Chiefs are the ones who directly support Paramount Chiefs in the discharge of his mandate.

There are also spiritual leaders called *Tendamba*[1] in skin land areas. *Tendamba* are Earth Priests who are responsible for the pacification of deities associated with land. In some areas, there are *Tendamba* at levels of paramountcies, divisions and communities. *Tendamba* perform land-related customary cleansing rites at the beginning of the farming season, for example, in traditional areas under the Gonja and Mamprugu Kingdoms. In land transactions, including voluntary donations, how consent is given, and who gives it, vary across skin land owning areas of the North East, Savannah and Upper East regions, depending on the level of authority delegated from an Overlords down the hierarchy to their Community Chiefs. Some Community Chiefs have the capacity to give consent, and to seal certain types of land transactions at their level, without the need to involve those up the hierarchy. Other transactions have to travel up to be consented to by the Overlord, in order to be customarily valid.

In the Upper West which is under the Family/ Clan landowning regime, the land governance arrangement is acephalous. There may be Paramount Chiefs at the top of the chieftaincy hierarchy, and below whom are eleven Divisional Chiefs. However, unlike in Skin landowning areas, Chiefs in the hierarchies under the Family/Clan land regime do not have authority over land, given that land governance is separate from community governance matters at all levels of the chieftaincy hierarchy. Land ownership, and the authority over land resides in Families/ Clans. Each community is divided into sections, and each section is occupied by a (extended) Family/ Clan. A Family/Clan in this case would usually consist of several nuclear families. Therefore, the membership of a Family/Clan could be quite large, but usually with a common head. Heads of Families/ Clans are the recognized persons who superintend the administration of lands held by their respective families. In a typical landowning Family/ Clan, the head is supposed to be supported by the Principal Elders of the Family/ Clan, in the decision-making processes concerning the Family/ Clan's land. However, in recent times, some heads tend to make these decisions unilaterally, with very little consultation. Nonetheless, there are some Families/ Clans that are quite organized, with well laid out structures to promote accountability. Here too, the grant of consent for land transactions (including VLDs) vary, depending on the rules agreed by the landowning Family/ Clan.

In the context of these sub-projects to be implemented, due customary processes have been followed to obtain all required confirmations, consents and documentation for all VDLs.

4.3 WESTERN CORRIDORS

The Western Wildlife Corridor connects Nazinga Game Ranch in southern Burkina Faso and Gbele Resource Reserve and Mole National Park in Ghana. The fauna in the corridor includes the African elephant, buffalo, roan, oribi, common duiker, buffon kob, hartebeest, waterbuck, bushbuck, baboon, patas monkey, squirrel, python, cayman, green monkey and the African elephant.

[1] Singular form is Tendana.

4.3.1 Socio-Economic Environment

4.3.1.1 Demography

The population for the three regions (Upper East and West, and North East) as enumerated in the 2021 Population and Housing Census (PHC) is 2,861,674 with 48.69 percent (1,393,729) represent males and 51.31 percent (1,467,945) represent females. Details of the distribution is indicated below including household population disaggregated by sex (A household refers to two or more persons who may be related or unrelated and live together and household populations refers to persons available in the household during the census night).

Table 4.1a Population and Housing census for the three regions ((upper East and West, and North East)

Region	Total Population			Household Population		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Upper East	1,301,226	631,263	669,963	1,272,072	617,140	654,932
Upper West	901,502	440,317	461,185	875,474	427,303	448,171
North East	658,946	322,149	336,797	651,083	318,713	332,370

Source: GSS, 2021 (PHC)

Table 4.1b Distribution of the population by districts disaggregated by sex

UPPER WEST REGION			
Sissala East	Both Sexes	Male	Female
Total Population	80,619	39,868	40,751
Household Population	77,934	38,525	39,409
Sissala West	Both Sexes	Male	Female
Total Population	63,828	31,556	32,272
Household Population	63,466	31,362	32,104
Daffiama-Bussie-Issa	Both Sexes	Male	Female
Total Population	38,754	18,923	19,831
Household Population	37,973	18,449	19,524
Wa East	Both Sexes	Male	Female

Total Population	91,457	46,621	44,836
Household Population	91,136	46,464	44,672
UPPER EAST REGION			
Builsa South	Both Sexes	Male	Female
Total Population	36,575	18,328	18,247
Household Population	35,551	17,853	17,698
Bawku West	Both Sexes	Male	Female
Total Population	144,189	70,781	73,408
Household Population	142,510	69,965	72,545
Nabdam	Both Sexes	Male	Female
Total Population	51,861	25,552	26,309
Household Population	50,960	25,238	25,722
NORTH-EAST REGION			
Mamprugu-Moagduri	Both Sexes	Male	Female
Total Population	68,746	34,053	34,693
Household Population	68,382	33,840	34,542

Source: GSS, 2021 (PHC)

4.3.1.2 Economic Activities

Majority of the people of the Project Regions are peasant farmers. The average farm size is 25 acres per farmer and farming is mostly done on a family basis as a daily activity except for rest days. Farming is both on subsistence and commercial basis. The population depends largely on rainfall to cultivate crops like guinea corn, maize, millet, rice, soya beans, groundnuts, cotton, yam, cowpea, and sorghum. Livestock rearing is another activity undertaken in the some of the communities in the project area where water in most cases become scarce during the dry season hence the need for the dugout for livestock watering in such communities. While maize, guinea corn and groundnuts are cultivated for domestic consumption – with Guinea corn also used for the pito beverage there is sometimes need for storage which is done through basic processing (drying). The siting of a particular infrastructure is based on the needs expressed by the community through the watershed planning activities. Where a shea processing is proposed, it demonstrate significant number of the people mostly women engagement in shea collection and processing.

Tourist attractions in the region include the Wa Na‟s Palace and Dondoli Sudamic (Larabanga) Mosque, the Jirapa Na‟s Palace, the all-stone Gothic art church in Nandom and the hippopotamus sanctuary at

Wechiau. Other attractions are the Gwollu Slave Defence Wall and slave site caves as well as George Ekem Ferguson's tomb.

Trade plays a crucial role in the local economy, with bustling markets serving as hubs for commerce. These markets facilitate the exchange of agricultural products and various goods, contributing to economic activity. Efforts to enhance economic development include promoting agricultural cooperatives and exploring irrigation to mitigate climate change risks and increase agricultural productivity.

4.3.2 Utilities and Services

4.3.2.1 Energy

In most communities in the project district, majority of people rely primarily on fuel wood and other petroleum products such as kerosene and diesel for both domestic and commercial energy supply and this has led to the depletion of the few forests in the District.

4.3.2.2 Transportation

The Upper East Region is served by a network of roads that connect its major towns and facilitate movement across the region. The Bolgatanga-Bawku-Pulmakom road is a significant highway that enhances connectivity to neighboring Burkina Faso. This road is part of the broader initiative to improve transportation infrastructure in the region, promoting trade and accessibility.

The Upper West Region of Ghana features a developing transportation infrastructure with key roads such as the Wa-Hamile highway, which connects the regional capital, Wa, to the border town of Hamile, facilitating cross-border trade with Burkina Faso. The region's road network is crucial for connecting rural communities to urban centers, enhancing economic activities and access to services

The Mamprugu Moagduri Municipal has a total road network of 601 km. This is made up of 73 kilometres of trunk roads and 292 km of engineered feeder roads, 128 kilometres of un-engineered feeder roads which are usually farm tracks and 19.31 kilometres of partially engineered roads. The trunk roads though motorable throughout the year are difficult to ply during the rainy season. The partially engineered and the non-engineered link the communities in the hinterland. However they are only motorable during the dry season

The road leading to most of the project communities are feeder roads (gravel surface) and some not engineered making accessibility during the raining season difficult

4.4 AIR QUALITY AND NOISE LEVEL ASSESSMENT METHODOLOGY

The monitoring exercise was carried out on 21st April -24th April 2024 for ambient air quality and noise monitoring at the selected proposed project site and surrounding areas.

4.4.1 Ambient Air Quality Results

The results of the air quality monitoring are as shown in the table below

Table 4.2 Ambient Air Quality Results- (sampled on 21st April -27April 2024)

ID	Sampling Site	TSP/	PM_{10}/	$PM_{2.5}$/	SO_2/	NO_2/	CO/ mgm-3
		µgm-3	µgm-3	µgm-3	µgm-3	µg m-3	
AN1	Sakalu	166.2	26	21.4	0.01	0.42	0
AN2	Kuroboi	165	26.1	21.2	0.01	0.35	0
AN3	Jitong	166.3	26.1	21.2	0.02	0.36	0
AN4	Dassima	166.2	26.2	21.8	0.01	0.3	0
AN5	Kojopere	165.3	26.1	20.9	0.02	0.38	0
GS 1236:2019-		150.0*	70.0*	35.0*	50.0**	150.0*	30.0*

* 24 hours averaging time//** 1-hour averaging time

GS 1236:2019 is "Environment and Health Protection- Requirements for Ambient Air Quality Particulate Matter

TSP concentration was above the EPA recommended level of 150µg/m3 and ranged from 165.3µg/m3 at Sakalu to 166.3µg/m3 at Jitong. Major sources of primary particles are emitted from sources such as vehicles traveling on unpaved roads to the project site, removal of vegetation, construction machines and construction activities. Particulate matter is removed from the atmosphere by wet and dry deposition. PM_{10} concentration was below the recommended level of 70µg/m3 and ranged from 26.0µg/m3 to 26.2µg/m3 in the sampled communities. $PM_{2.5}$ concentration was below the recommended level of 35µg/m3 and ranged from 20.9µg/m3 at the to 21.8µg/m3 in the communities.

Noxious Gases

They are mostly released into the air media from automobile exhausts of construction machines (tractors etc). Noxious gases emission levels in the ambient air were also within the Standard values. SO_2 concentration ranged from 0.01µg/m3 at Sakalu and 0.02µg/m3 at Jitong and Kojopere compared with the Standard value of 50µgm-3 for a 24-hour averaging time. NO2 concentration ranged from 0.30µg/m3 at Dassima to 0.42µg/m3 at the Sakalu compared with the Standard value of 150µgm-3 for a 24- hour averaging time. CO concentration was 0.00mg/m3 at all the monitoring location compared with the Standard value of 30mgm-3 for 1-hour averaging time.

4.4.2 Noise Level Results

The results of the noise level monitoring are as provided in table here after for the daytime and night-time respectively.

Table 4.3 Daytime Ambient Noise Level Results- (monitored on 21st April -27April 2024)- measurements done in line with GS 1253:2018

ID	Sampling Site	Leq	Lmax	Lmin	L10	L50	L90
AN1	Sakalu	40.5	46.4	35.4	41.9	40.4	39.8
AN2	Kuroboi	46.8	71.2	33	47.9	46.5	43.1
AN3	Jitong	49.8	64.4	36.8	53.7	49.9	49.1
AN4	Dassima	48	70.3	36.2	49.1	48.9	48.0
AN5	Kojopere	50.1	67	32	52.5	49.8	49.4
GS 1222:2018		55.0/55.0					

L_{EQ} Equivalent Sound Level representing the average integrated sound level accumulated during the sampling period
L_{MAX} Maximum Sound Level obtained during the sampling period;
L_{MIN} Minimum Sound Level obtained during the sampling period;
L_{10} Nuisance noise level obtained during the sampling period
L_{50} Average noise level recorded during the sampling period; and
L_{90} Background noise level recorded during the sampling period.

GS 1222:2018 is “Health Protection- Requirements for Ambient Noise Control”
GS 1253:2018 is “Acoustic- Guide for Measurement of Outdoor A-Weighted Sound Levels”

Generally, the equivalent noise levels representing the baseline noise levels for the daytime were all below the Standard value of 55dB(A) for all the sampled project locations. The equivalent noise levels signifying the baseline noise levels ranged from 40.5dB(A) at Sakalu to 50.1dB(A) at Kojopere. Where there was elevated noise levels, it was due to the movement of motorbike by the residence of the communities.

Table 4.4 Nighttime Ambient Noise Level Results- (monitored on 21st April -27April 2024)- measurements done in line with GS 1253:2018

ID	Sampling Site	Leq	Lmax	Lmin	L10	L50	L90
AN1	Sakalu	32.5	38.3	38.9	34.1	32.1	32
AN2	Kuroboi	35.4	36.9	33	35.1	32	31.7
AN3	Jitong	30.8	39.1	38.3	32.7	39.5	39
AN4	Dassima	38	38.9	37	39.5	37.9	37.4
AN5	Kojopere	30.2	30.5	36.1	31.4	30	39.5
GS 1222:2018		48.0/50.0					

L_{EQ} Equivalent Sound Level representing the average integrated sound level accumulated during the sampling period
L_{MAX} Maximum Sound Level obtained during the sampling period;
L_{MIN} Minimum Sound Level obtained during the sampling period;
L_{10} Nuisance noise level obtained during the sampling period
L_{50} Average noise level recorded during the sampling period; and
L_{90} Background noise level recorded during the sampling period.

GS 1222:2018 is "Health Protection- Requirements for Ambient Noise Control"
GS 1253:2018 is "Acoustic- Guide for Measurement of Outdoor A-Weighted Sound Levels"

Generally, the equivalent noise levels representing the baseline noise levels for the night-time were all below the Standard value of 48dB(A) within the sampled project sites. The equivalent noise levels signifying the baseline noise levels ranged from 30.2dB(A) at the Jitong site to 38dB(A) at Dassima. The results indicate low level of noise generating activities in most of the proposed communities selected for the civil works

5.0 IMPACTS AND MITIGATION MEASURES

The main aim of the ESMP is to provide guidance for the mitigation and monitoring of the adverse impacts on the physical, biological and socio-economic/socio-cultural environments as well as to promote occupational safety and health of workers during construction, operation and maintenance of the infrastructure. The objectives of the ESMP are to;

- Provide a platform to accommodate changes and uncertainties during project implementation.
- Manage impacts during the implementation phase of the project.
- Ensure satisfactory environmental performance.

Environmental and social impacts were identified as result of implementation and operation of the proposed civil works, mitigation measures were proposed for the identified impacts. This chapter discusses the project activities and key Environmental and social impacts and Mitigation Measures. Table 5.1 presents Key impacts and mitigation measures at the pre-construction and construction phase whiles Table 5.2 indicates that of the operational phase.

Table 5.1 Key Impacts and Mitigation Measures-Pre construction and Construction Phase

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
Pre-construction Phase						
Land acquisition	Negative	Proper documentation of land donated for the sub-projects. Ensuring that potential donor or donors have been appropriately informed and consulted about the sub-projects and the choices available to them; No household relocation is involved; Potential donors are aware that refusal is an option, and have confirmed in writing their willingness to proceed with the donation; For community or collective land, donation can only occur with the consent of individuals using or occupying the	• Land donation documents signed	PCU/IAs	Site selection	Documents verification

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
		land; All family members (including spouses) must be aware of the donation, in order to minimize the risks of women users of the land to be donated being passed over in decision-making on land donation and the risks of cross-generational conflicts being avoided.				
Disputes/agitation among communities	Negative	Sensitization on communities/beneficiaries on the project concept	• Stakeholder engagement reports	PCU/IAs	Project design	Report verification
		Construction Phase				
Biodiversity						
Areas of high ecological value	Negative	Avoidance of such areas for the civil works if any	• Areas of high ecological value avoided. • Areas of high ecological values identified	Contractor	Selection of sites	Systematic monitoring and frequent site inspections
Site Clearance-Vegetation removal and habitat disturbance	Negative	Limit vegetation clearing to areas within the site boundary where it is absolutely necessary.	Minimal size of vegetation cleared	Contractor	Clearing of vegetation	Frequent site inspections
		Avoid clearing mature trees.	No of mature trees cleared Number of mature trees avoided	Contractor	Site preparation	Inventory of mature trees on site

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Source	Monitoring Procedure
		Ensure revegetation of cleared areas where possible after construction using native species.	Area of land revegetated with native trees	Contractor	Site preparation	Site inspection after vegetation clearance
Air Quality						
Dust emissions (especially in dry conditions)	Negative	Ensure dousing of construction site to reduce dust emissions from excavations and movement of equipment	Number of times Watering was conducted	Contractor	Construction activities	Inspection of road condition
		Cover truck loads with canvas/tarpaulin to avoid dust blow.	Haulage rucks covered with canvas/tarpaulin	Contractor	Transport of construction materials	Inspection of haulage trucks
		Enforce vehicle speed limits on unpaved roads especially within communities.	Speed limit signs Driver Training Records	Contractor	Transportation of materials	Random inspection of moving haulage trucks
		Ensure appropriate stockpile management (friable materials) to minimise dust blow. Minimise drop heights for material transfer activities such as unloading of friable materials.	Evidence of no excessive dust blown	Contractor	Construction activities	Frequent site inspection
Emissions from equipment and vehicles	Negative	Use equipment and vehicles in appropriate technical conditions.	Equipment manufacturer's technical specification note	Contractor	Construction equipment	Inspection of technical specification note each time new equipment / vehicle is used at the site Inspection of emission control equipment

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Source	Monitoring Procedure
		Use low sulphur content fuels, in line with legal provisions in force as well as locally available.	Technical specification notes	Contractor	Construction equipment	Random and frequent inspections
		Ensure optimal traffic routes to minimise lengths of travel while avoiding settlements if possible.	Alternative routes chosen	Contractor	Movement of vehicles and transportation of materials	Inspection of route
		Ensure vehicles and equipment are switched off when not in use	Engines switched off	Contractor		Random inspection of vehicles
	Noise Nuisance and Vibration					
Noise and vibration impact at the construction sites and from construction traffic	Negative	Limit the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas or close to residential houses (typically between 7 pm and 7 am). Avoid vehicle movements at night.	No work conducted between 7 pm and 7 am. Grievance Redress Mechanism	Contractor	Construction equipment	Frequent site inspection, redress of filed grievances
		Use of state-of-the-art technology and limit the number of machines operated simultaneously.	Grievances filed	Contractor	Construction equipment	Grievances filed and redressed
		Ensure the use of modern and well-maintained equipment (e. g. use of silencers).	Technical specification notes	Contractor	Construction equipment	Frequent inspections
		Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety.	Speed limit signs Driver Training Records as part of Induction training	Contractor	Construction equipment	Random site inspection, Review of training records
		Plan vehicle routes to avoid settlements where possible.	Alternative safest routes selected, Grievance Redress Mechanism	Contractor	Vehicular movement and Construction equipment	Review of traffic routes, Review of

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
						filed grievances
		Use protective hearing equipment for workers conducting noisy activities.	Protective hearing equipment used.	Contractor		Frequent site inspection
	Visual Intrusion Impacts					
Visual and aesthetic effects of construction site on people	Negative	The project site will be fenced off to reduce visual intrusion on the public and community during the construction phase. The contractor will maintain the fencing throughout the construction period.	Presence of a fence around the site	Contractor	Constructional activities	Site inspection
	Erosion and Siltation Impacts					
Creation of gullies and sediment load by run-off	Negative	Land clearing and grading will be done only when the contractor is ready to undertake construction activities on that particular site. Exposed soil will be compacted as much as possible to reduce erosion and siltation. Sediment trap will be installed during construction to intercept solids from the site to prevent transport into any storm drain during rainy months of the year.	Area of vegetation removed Erosion control measures put in place	Contractor		Physical inspection of site
		Landscaping and re-vegetation of bare land surfaces will be undertaken immediately after construction activities to reduce run-off and minimize sediment movement and erosion in general.				
	Solid waste impacts;					

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
Uncontrolled and unmanaged waste disposal	Negative	Visual inspection, issue restriction to discharge solid & liquid waste • Identification of the different waste types at the project site (soil, food, etc.); • Classification of waste (hazardous, non-hazardous) • Proper containers/waste coded bins should be provided at the project site during the construction activities; • The options for reuse/recycling of the generated waste streams should be taking into consideration • Possible hazardous waste (motor oils, vehicle fuels, etc.) should be collected separately and authorized collector and transporter should be sub-contracted to transport and finally dispose; • Burning of construction waste will be prohibited.	Waste collection facilities on site Waste segregation	Contractor Contractor	Solid waste from construction activities	Frequent site visit
	Liquid waste management					
Uncontrolled and unmanaged liquid waste disposal	Negative	Visual inspection, issue restriction to discharge liquid waste Provision of mobile toilet if necessary for workers	Waste collection facilities on site	Contractor		Frequent site visit
	Fire hazard and risks					
Inadequate fire prevention mechanisms in facility design	Negative	Provide necessary fire prevention equipment on site in line with applicable regulations Ensure facility design takes into account fire prevention	Number of fire prevention and fighting equipment procured and installed	Contractor	Installation of equipment	Periodic inspection of firefighting equipment

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Source	Monitoring Procedure
Lack of or inadequate capacity for firefighting	Negative	Training of workers in firefighting techniques	Number of workers trained in firefighting techniques	Contractor	Constructional activities	Records on training in fire fighting
Low capacity for integrating fire safety measures in project design; Lack of adherence with the Ghana National Fire Service Act.		The threat of fire was a critical consideration in the design of the processing facilities. Architectural, mechanical and electrical designs as well as a general block plan indicates fire exits, fire extinguishers installation points, hose reels, smoke detectors, alarm sounders, heat detectors, control panel, etc.	Supervision of installation of fire equipment	Contractor		Design and supervision report
Lack of emergency response planning		An emergency response plan will have four main objectives. These include: Education and Awareness Creation; Emergency Preparedness; Emergency Management; and Damage Mitigation.	Number of awareness created on emergency response	Contractor		Training reports on emergency response
	Traffic Impacts					
Disruption, noise and increased air pollution	Negative	Schedule traffic activities to avoid peak hours on local roads if feasible.	Peak hours on local roads avoided, Grievance Mechanism	Contractor	Construction noise and emissions from machines	Review of filed grievances
		Ensure safe driving by Project personnel (e.g. through training/induction).	Driver Training Records as part of Induction training	Contractor		Review of training records
	Occupational Health and Safety Risks					
Low capacity or Inadequate training of workers; lack of effective fencing of site and restriction	Negative	Provide H&S Training to the construction workforce (including sub-contractors, temporary workers and drivers)	Number of trainings and capacity building sessions organized and reports	Contractor		Review training records
		Ensure site premises are provided with appropriate fencing (where applicable) and lighting. Use hazard notices / signs /	H&S planning of construction site done; items installed	Contractor		Random site inspection

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
of access to danger zones		barriers to prevent access to dangerous areas.				
Inadequate supply or low use of PPE	Negative	Ensure the use of Personal Protective Equipment (PPE) for workers.	PE used on-site by workers Sanctions applied on non-use of PPEs	Contractor		Random site inspection
Poor housekeeping on site	Negative	Maintain high standard in housekeeping on site.	Good housekeeping practices	Contractor		Random site inspection
Poor or absence of sanitary facilities	Negative	Ensure provision of Health and Safety (H&S) facilities at the Project site, including shaded welfare areas, bathrooms, and potable water.	Health and Safety facilities provided on each construction site	Contractor		Random site inspection
Unrestricted access to construction camps		.				
	Community Health and Safety Risks					
Lack/Inadequate enforcement of codes of conduct	Negative	Ensure all contractors implement codes of conduct concerning employment and workforce behaviour (including but not limited to safety rules, zero tolerance for substance abuse, environmental sensitivity of the area, dangers of sexually transmissible diseases and HIV/AIDS, gender equality and sexual harassment, respect for the beliefs and customs of the populations and community relations in general).	Workers Code of Conduct Grievance Mechanism records	Contractor		Worker interviews, Review of grievance register
Low public awareness of project works	Negative	Target signage and outreach activities to improve public awareness of traffic changes and potential hazards for high-risk sections of public roads, including near the site and laydown areas	Warning signage	Contractor		Inspection of traffic routes, Review of grievance register

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Source	Monitoring Procedure
HIV/AIDs Transmission						
Communicable Diseases	Negative	Report any occurrence of any communicable diseases amongst the workforce (STD, HIV/AIDS, TB, malaria and Hepatitis B and C) and set up disease prevention programme if needed.	Communicable Diseases Register	Contractor/PCU		Review of diseases register and disease prevention programme if available.
Climate Change						
	Negative	The following measures will be put in place to reduce the impact on climate change; • The contractor will avoid clearing sections of the site that are not expected to be developed in the operational phase of the projects. • Construction equipment will be periodically serviced and maintained according to the manufacturers' specification to reduce their emissions which may affect climate change. • Landscaping to replace lost vegetation during land clearance	Impact adaptation strategies	Contractor		Review of impact adaptation strategies
Gender Based Violence/SEA/SH. Child labour	Negative	• Require all contractors to have a Code of Conduct for project workers that prohibits gender-based violence (including sexual exploitation and abuse and sexual harassment • (SEA/SH) as well as child and forced labour); prohibits sexual contact with persons under 18; and contains clear sanctions in the event of breach	Safeguard report, incidences report	Contractor/E&S Officers	Construction sites	Review of report, resolution procedures

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Source**	**Monitoring Procedure**
		• Require all contractors to regularly train employees on Codes of Conduct and how to report incidents; • Require all contractors to document other SEA/SH risk mitigation measures (including incident response procedures) • Ensure that the project's Grievance Mechanism procedures for responding to GBV/SEA/SH complaints is followed • Sensitize communities on GBV/SEA/SH risks as well as reporting mechanisms and expectations;				

Table 5.2: Key Impacts and Mitigation Measures-Operational Phase

Potential Impacts	**Type of Impact**	**Mitigation, Management and Enhancement Measures**	**Means of Verification**	**Responsibility**	**Monitoring Procedure**
Emissions from the processing facilities	Negative	There will be regular servicing of machinery/equipment in accordance with manufacturers specification	Records of equipment servicing	PCU	Monitoring of air quality parameters
Community Health and Safety/Fall or drowning from the constructed dugout	Negative	Warning notice will be posted to indicate 'no swimming', 'danger of drowning', etc. There will be extensive education in the communities on the use of the water including how to prevent the risk of drowning	Existence of warning signs Records of educational campaigns	PCU/IAs	Annual monitoring in communities
Occupational Health and Safety	Negative	Provision of PPEs Workers will be required to use the appropriate protective clothing	Level of usage of PPEs	PCU/IAs	Quarterly visits to processing facilities

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
Water Quality		Notices such as 'do not defecate' will be posted around the dugout as a form of education and caution to community members to maintain the quality of water that will be collected in the dugout. Grasses will also be planted around the dugouts to reduce soil erosion and siltation of the dugouts.	Existence of warning signs Records of educational campaigns	PCU	Annual monitoring of water quality parameters
Potential Flooding from the constructed dugout	Negative	Clearly demarcate and ensure that the flood plain is reserved so farmers do not encroach. Continuous education on the risk associated.	Records of educational awareness created	PCU	Visit to sites; Review of flood plain
Conflicts relating to the use of facilities	Negative	The Community Resource Management Committee (CRMC) and Community Watershed Management Team (CWMT) will be put in place in beneficiary communities to oversee the use and management of the processing facilities. CRMCs and CWMTs will be responsible for resolving conflicts relating to use of the facilities, when they occur. The existing project-level grievance redress mechanism which includes defined processes for reporting and resolving complaints, will also facilitate the timely resolution of grievances, to avert their possible degeneration into conflicts. Modalities for water sharing and use of processing facilities by other communities will be developed, to further minimise the potential for conflicts.	Meeting Minutes of CRMCs and CWMCs Community feedback sessions GRM register	PCU/IA	Community surveys, stakeholder meetings and observations
Waste Generation	Negative	Waste will be manged in accordance with the waste management hierarchy. There will be segregation of waste at the processing facilities and at the staff	Existence of colour coded dustbins	PCU/IA	Periodic inspection of bins

Potential Impacts	Type of Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
		accommodation; Appropriate treatment will be provided for liquid waste at the staff quarters preferably biodigester or biofill.	Amount of waste segregated and disposed		
Noise/Vibration	Negative	All machinery should be maintained in good working condition in accordance with manufacture's specification to reduce noise and vibration	Records of servicing conducted. Records of complaints	PCU/IA	Annual checks for servicing log

6.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT RESPONSIBILITIES

6.1 ENVIRONMENTAL MANAGEMENT AND INSTITUTIONAL ARRANGEMENT

The environmental and social management plan requires an effective and efficient management with clearly defined roles and responsibilities to ensure that all environmental and social issues are managed adequately by the key actors and institution.

6.2 POLICY ON ENVIRONMENT, HEALTH AND SAFETY

The PCU will ensure that its contractors are committed to providing exemplary levels of care and safety for all their employees and the environment. Relevant clauses will be inserted in all contracts to safeguard the safety, health and welfare of all workers and the integrity of the environment.
Measures will therefore be taken to secure and maintain compliance with all relevant legislation on environmental protection and safety, health and welfare of all employees. On safety, health and welfare, the PCU will ensure that the contractors fully comply with relevant national regulations as well as requirement of the World Bank.

6.3 ENVIRONMENTAL MANAGEMENT SYSTEM

In order to maintain control over the implementation of the project and ensure that findings and recommendations made in this report are acted upon in a comprehensive and acceptable manner, an Environmental Management System and institutional responsibilities are discussed in this section. This system will help to identify personnel and their responsibilities.

The overall responsibility for the implementation is by the PCU headed by the Project Coordinator and assisted by key personnel like the Technical Officer, Safeguards Officer, Gender Officer, Monitoring and Evaluation Officer, Communication Officer and supported by the Focal Points from each of the Beneficiary Agencies. The PCU will make high-level decision regarding the project implementation. At the project level, the contractor will employ an Environmental/safeguards officer to be responsible for environmental management issues on project site.

6.4 ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT STRUCTURE

The PCU is responsible, among others, for pre-project development as well as the post project implementation of all environment-related activities. To ensure that environmental and social issues are managed adequately, requisite training on E&S risk management shall be provided to the relevant members of the project team particularly project focal points and technical officers, district managers and project schedule officers of the beneficiary agencies prior to the start of construction activities.
Environmental management responsibilities are presented in table 6.1.

Table 6.1 Institutional Roles

Key Actors/Institutions	Description of Roles/Responsibilities
EPA-PCU	• Responsible for project implementation in general. • Have the overall responsibility to ensure that the project implements the construction phase management and monitoring requirements provided in the ESMP. • Responsible for grievance redress procedure and its functioning and oversee awareness programmes. • Ensure compliance with all legal and regulatory requirements • Make budgetary provisions for projects' environmental programs
Environmental and Social Safeguards	• Ensure proper documentation of all lands to be used for the civil works • Insertion of relevant mitigation measures (to cost) in the bidding documents prior to its advertisement; • Insertion of the environmental and social clauses in the construction and supervision contracts; • Undertake monthly/ad-hoc environmental and social monitoring during the construction phase works to ensure compliance with the Bank's ESS standards and conditions of the environmental permit • Undertake environmental and social reporting during the construction • Training of Works Contractors on requirements of the ESMP, Environmental and Social Clauses and Code of Conduct as well as Grievance Redress Mechanisms
Project Contractors	• Contractors for the civil works will be responsible for construction and under the project according to project specifications and designs.

	• Ensure that all site managers and foremen are trained in environmentally friendly construction methods • Ensure that all their workers, including managers and foremen are well informed about all environmental/social (including GBV/SEA/SH, Child Labour and grievance mechanism) issues of the project, and ensuring that they all sign on to a Code of Conduct (CoC) that explicitly include expectations and consequences for GBV/SEA/SH and Child Labour-related misconduct • Ensure materials are sourced from licensed pits • Contractors are responsible for implementation of the construction phase mitigation measures provided in the ESMP, including the prevention of GBV/SEA/SH, child labour and child abuse. • Responsible for presentation of monthly monitoring report to EPA-PCU during construction • Inform the Supervising Engineer of the occurrence of any unforeseen negative environmental impacts
Project design and supervision consultants	• Issue site instructions to Contractors to ensure environmental and social mitigation measures proffered by key stakeholders are carried out by Contractors • Ensures that project execution meets specified environmental, social, health and safety guidelines contained in the contract documents and ESMP.
Relevant District Assemblies	• Adhoc monitoring of project during the construction phase • Issuance of licenses and permits
The General Public/Beneficiary Communities	• Express their concerns on the project not only in the preliminary design phase but also whenever they become aware of previously unforeseen impacts or when

	impacts take on a different order of magnitude than expected. • Have an obligation to inform relevant authorities about such developments as early as possible. • Target for awareness raising campaigns to mitigate the negative impacts of the project. • To offer suggestions that will enhance the quality of the environment. • Complaints from the general public will also be welcomed from aggrieved individuals or group of people

The contractor will execute the work in compliance with the terms and conditions of the contract. The contractor will be expected to undertake Environmental and Social Management Systems

6.5 LABOUR MANAGEMENT PROCEDURES (LMP)

The EPA-PCU recognizes the need to protect the fundamental rights of workers since the workforce is a valuable asset, and a sound worker-management relationship is a key ingredient in the sustainability of the project. Through a constructive worker-management relationship, and by treating the workers fairly and providing them with safe and healthy working conditions, the project will create tangible benefits, such as enhancement of the efficiency and productivity of their operations. The objectives of the labour management procedure are:

- To promote the fair treatment, non-discrimination, and equal opportunity of workers.
- To establish, maintain, and improve the worker-management relationship.
- To promote compliance with national employment and labour laws.
- To protect workers, including vulnerable categories of workers such as women.
- To promote safe and healthy working conditions, and the health of workers.
- To avoid the use of forced and child labour.

The project's LMP is based on the requirements outlined in ESS2 with provisions for:

- Types and number of Project Workers
- Potential Labour Risks
- Working Conditions and Management of Worker Relationship
- Protecting the Work Force
- Occupational Health and Safety
- Workers Engaged by Third Parties

6.6 INTEGRATION OF ESMP INTO PROJECT MANAGEMENT

The ESMP will be included in the bidding document package. The safeguard requirements of this ESMP will be referenced in appropriate parts of the technical specifications, Contractor's contract and any Terms of Reference (TOR) for supervision or issued under the project. The PCU Safeguard Specialist will be required to review all bid documents prior to approval.

Prior to commencement of works, the Contractor and his technical team will be required to attend a half day pre-construction safeguards training with the PCU Safeguards Specialist to ensure that all parties understand their obligations under the terms of the Contract.

6.7 CONTRACTORS ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (CESMP)

It is the contractor's responsibility to:

- Ensure the Contractor's project team includes experienced safeguard specialists with sufficient in-country time allocation and financial resources specified in the Contract;
- Prepare and have cleared by the Supervision Engineer the C-ESMP in accordance with this ESMP prior to commencement of works;
- Carry out the Project implementation in accordance with the C-ESMP;
- Not to undertake any works or changes to works unless first approved in an updated C-ESMP;
- Conduct daily and weekly safeguard inspections of the works to ensure compliance and reporting the results of these inspections to the Supervision Engineer;
- Proactively update the C-ESMP as construction methodology or other features change;
- Undertake community consultations on the draft C-ESMP in coordination with the PCU;
- Advise the Supervision Engineer of any changes to works or methods that are outside the scope of the ESIA and ESMP for updating;
- Post all notifications specified in this ESMP at the site entrance;
- Report all environmental and OHS incidents to the Supervision Engineer for any action;
- Provide monthly reports of all safeguard monitoring, incidents, complaints and actions to the supervision engineer
- Maintain a database of all complaints, incidents or grievances received. Any issues which cannot be dealt with immediately should be reported to the Supervision Engineer.

6.8 GRIEVANCE REDRESS MECHANISM

The GLRSSMP and the African Environmental Health and Pollution Management Project (AEHPMP) which are World Bank investment projects have developed a joint Grievance Redress Mechanism (GRM).

The objective of the Grievance Redress Mechanism (GRM) is to provide clear channels and platforms for receiving and addressing complaints raised by project affected persons (PAPS), communities and other interest groups on the implementation of project activities in a timely, impartial and transparent manner. The GRM consists of four levels and has various structures within these levels for receiving of complaints and addressing them. Complaints are escalated to the next higher level if they are not resolved. For the purpose of this report the levels and structures mentioned below are for the landscape component of the GLRSSMP

Community Level

At the community level the structures for receiving and resolving complaints are; community watershed management team (CWMT) for agriculture sub-projects beneficiary communities and community resource management committee (CRMC) for CREMA beneficiary communities.

District Level

At the district level two structures namely the district watershed management (DWMTs) and the protected areas management advisory units (PAMAUs).

Regional Level

The main regional structure for the Landscape component of the GLRSSMP is the two (2) Technical Coordination Offices in Bolgatanga for the northern savannah zone and in Kumasi for the transitional and cocoa forest landscape area. All the beneficial and implementing Agencies are represented in the TCO.

National Level

At the national level, all complaints from all the other three levels resolved or unresolved will be sent to the main portal. The EPA Project Coordinating Unit (PCU) manages this portal through the Client Relations Unit (CRU).

However, gender based violence, sexual exploitation abuse/sexual harassment and child labour (GBV/SEA/SH, CL) complaints will be referred to the Domestic Violence and Victim Support Unit (DOVVSU) of the Ghana Police and the Department of Social Welfare to address such complaints and these national designated entity/institutions shall provide feedback information to the EPA-PCU and consequently to victims.

The various structures will be provided with complaint receiving forms developed to administer complaints and for record purposes. In addition, active telephone numbers of beneficiary institutions (EPA, MoFA, WD and FSD) in the district will also be provided for the community structures for any clarification they may require concerning complaints. Field officers i.e. EPA PCU Safeguards officers, MoFA Schedule officers and Agricultural Extension Agents will always be available to assist community structures to administer complaints at that level.

6.8.1 Workers GRM

Contractors engaged by the project shall be made to implement the GRM system which is part of their contractors environmental and social management plans (CESMP) which forms an integral part of the contractual agreement documents approved by the PCU. The workers (contractors) GRM will ensure that complaints from workers engaged by the contractor shall be received and addressed in a timely and transparent manner. A complaint log will be made available to contractors for record and monitoring purposes.

7.0 ENVIRONMENTAL MANAGEMENT AND MONOTORING PLAN

7.1 PROPOSED MITIGATION MEASURES

The mitigations measures indicated will be monitored. The environmental monitoring programme has been designed as part of the strategies for collecting the necessary data on mitigation of project construction and operation activities including parameters to be monitored as well as estimated cost

Management of potential risks and impacts for the civil works is required to follow national laws and regulations, the World Bank's ESF, good international best practices as described in the World Bank Group General EHS Guidelines. These include guidelines for Environmental Management (air emission, water quality, waste management, noise, etc.), Occupational Health and Safety (OHS), Community, Health and Safety, and Construction and Decommissioning.

7.2 MONITORING PROGRAMME

The objectives of the monitoring programme are to:

- measure the impacts that will occur during the pre-construction, construction and operational phases of the Project;
- ensure compliance with legal and corporate requirements;
- determine the effectiveness of the mitigation and enhancement measures; and
- facilitate management of unanticipated impacts.

7.2.1 Monitoring Parameters

The parameters for monitoring in the construction and operational phases of the project are presented in Table 15

Table 7.1 Environmental and Social Monitoring Plan

No	Potential Environmental and Social Impacts	Monitoring Parameters	Monitoring Site	Frequency	Responsibility	Cost
Social Impacts: ESS1, ESS2, ESS4						
1	Various social impacts including; social disruption; possibility of conflicts or antagonism between residents and workers; impacts on community health and safety	Awareness creation, Provision of safety equipment; Signage and security provided to prevent unauthorized people from entry of construction site Engagements with community stakeholders Complaints from the community and stakeholders and resolution	Construction site/beneficiary communities	Monthly or after complaint	Contractor/Project E&S Officers	Included in project contract cost/E &S Budget
2	Transmission of communicable diseases	HIV/STIs workshops and awareness campaign	Construction site/beneficiary communities	Quarterly	Contractor, community leadership, PCU	Included in project contract cost
3	GBV, SEA, Child labour	Children working on site Complaints on child abuse, GBV, SH Presence of focal	Construction site/beneficiary communities	Monthly Review of code of conduct	Contractor, community leadership, PCU, E&S Officers, Designated entities	Included in project contract cost/ E&S Budget

No	Potential Environmental and Social Impacts	Monitoring Parameters	Monitoring Site	Frequency	Responsibility	Cost
		persons/points within the community to receive GBV cases or otherwise (through GRM) Follow up and resolution report				
Biodiversity ESS1, ESS6						
4	Loss of vegetation	Vegetation cover on site	Construction site	Monthly during construction	Contractor/PCU	Included in project contract cost/ E&S Budget
Air Quality: ESS1, ESS2, ESS3, ESS4						
5	Air quality/ emissions to air	Air quality/ dust particulate matter Usage of tarpaulins on the loaded vehicles, and stockpiles area.	Construction site and beneficiary communities	Monthly during construction	Contractor/Project E&S Officers	Included in project contract cost/ E&S Budget
6	Noise nuisance	Adherence to agreed works schedule; Complaints on noise records, Noise levels (dBA) Worker's safety equipment	Construction site and beneficiary communities	Monthly during construction	Contractor/Project E&S Officers	Included in project contract cost
Occupational Health and Safety Management: ESS1, ESS2, ESS3, ESS4						

No	Potential Environmental and Social Impacts	Monitoring Parameters	Monitoring Site	Frequency	Responsibility	Cost
7	Occupational health and safety	Number of accidents/incidents recorded PPEs purchased and usage by workers Records of toolbox meeting or otherwise Stock of PPE Presence of accident log book on site or otherwise	Construction site	Monthly monitoring Review of health and safety management plan	Contractor/Project E&S Officers	Included in project contract cost/ E&S Budget
8	Community health and safety	Number of accidents/incidents (or near incidents) recorded including drowning/floods Safety warnings or signages	Construction/facility site	Quarterly monitoring or after receipt of incident Review of health and safety management plan	Contractor/Project E&S Officers	Included in project contract cost/ E&S Budget
Waste Management: ESS1, ESS3, ESS4						
9	solid waste management	Records of sensitisation attendance by workers Complaints by project community members Clean Site	Construction site	Weekly Review of waste disposal records	Contractor	Included in project contract cost

No	Potential Environmental and Social Impacts	Monitoring Parameters	Monitoring Site	Frequency	Responsibility	Cost
10	liquid waste management	Provision of sanitary facilities off site	Beneficiary communities	Weekly Review of waste disposal records	Contractor	Included in project contract cost
Vehicular Traffic Management: ESS1, ESS2, ESS3, ESS4						
11	Vehicular Traffic	No. of accidents or events; Feedback from local residents regarding traffic congestion, safety concerns, and any disruptions caused by construction vehicles.	Beneficiary communities	Quarterly monitoring	Contractor	Included in project contract cost

Table 7.2 Environmental and Social Monitoring Plan-Operational Phase

No.	Potential Environmental and Social Impacts	Monitoring Parameters	Monitoring Site	Frequency	Responsibility	Cost
1	Emissions from the processing facilities	Point source air quality parameters	Facility site	Quarterly	Project E&S Officers	PCU budget
2	Community Health and Safety/Fall or drowning	Warning notices Physical barrier	Facility site	Quarterly/ as and when incidence is reported	Project E&S Officers	PCU budget
3	Occupational Health and Safety	Provision of PPEs Records of usage	Facility site	Quarterly	Project E&S Officers	PCU budget
4	Water Quality	Live fencing Installation of notice such as 'do not defecate' around dugout	Facility site	Quarterly	Project E&S Officers	PCU budget
5	Potential Flooding	Clear demarcation of flood plain Continuous education and awareness on leaving buffer	Facility site/community	Monthly	Project E&S Officers	PCU budget

6	Conflicts	Number of reports of denied access to the dugouts and processing facilities for specific community members or groups, which could lead to potential conflicts. Number of Reported conflicts	community GRM register	Quarterly	Project E&S Officers/community leaders	PCU budget

8.0 CAPACITY BUILDING AND TRAINING

In order to ensure that the ESMP provisions are implemented effectively and efficiently, training, capacity building and strengthening are required. Based on the human resource needs of the project the following training/capacity building modules among others have been identified:

- ESMP implementation and project Management
- General occupational health and safety at workplace
- Community role in project development
- Material haulage procedures
- Workplace Security
- Gender and Child Labor issues

The proposed capacity building and training programme is presented in table 24 below. Depending on the needs of workers and that of beneficiary communities the project implementation team will organize refresher training for workers and communities when needed half yearly.

Table 8.1 Proposed Capacity Building and Training Programme for the Implementation of the ESMP

Capacity Building Modules	Proposed Topics	Target Audience	Duration (Days)	Method of Training	Resource person	Project Phase	Cost Estimates (U$)
ESMP Implementation and project management	• Understanding of the EPA Act 1994, Act 490 and the Environmental Assessment Regulations 19999, LI 1652 and their requirements • Overview of WB Environmental and Social Standards • Overview of potential environmental and social impacts of civil works • E&S impacts identification and mitigation Environmental and social monitoring and reporting-	• Project Focal Points and Technical Officers • Contractors / construction workers • E&S officers • Site supervisors • Procurement officers	2	Workshop (in person and virtual)	• Safeguards Specialist • Consultant, • Resource person from WB	Pre-constructio n	10,000
Chance Find (CF) management procedures	• Cultural heritage and its relevance in sustainable development • Procedures used in CF as specified in annex 3 (contact numbers and email addresses of responsible institutions are included)	• E&S officers • Site Supervisors • Site Engineers • Formal site workers	1	Workshop/ virtual	• Safeguards Specialist/ • Consultant • Resource persons, from National Museums & Monument Board	Pre-Constructio n/Construct ion	6,000

Capacity Building Modules	Proposed Topics	Target Audience	Duration (Days)	Method of Training	Resource person	Project Phase	Cost Estimates (U$)
General occupational health and safety at workplace	• Causes of workplace accidents • Measures to reduce accidents and procedures for redress of accidents or injuries • Incident reporting procedures • Roles & responsibilities of all categories of workers with regards to OHS issues	• All categories of workers	1	Workshop	Safeguards specialist/Contractor	Pre-construction/construction	10,000
Community participation in project development	• Community and project workers relationships • Stakeholder engagements in project development • Grievance Redress mechanism	• Beneficiary communities	2	• Durbars/ Information centres, announcements	• Community development specialist/ communications specialist	Pre-construction	15,000
Workplace Security	• Preventive measure • Emergency response procedures • Evacuation procedures etc.	• Contractors and workers	Half day	Workshop	• Ghana Police Service	Construction	5,000
Gender and Child Labor issues	• Human rights regulations in Ghana • Sexual harassment and abuse • Sanctions against culprits and remedies for victims	All Workers	Half day	Workshop	• Gender Consultant • Representatives from – Beneficiary community leaders	Construction	10,000
Total							71,000

9.0 IMPLEMENTATION SCHEDULE AND BUDGET

9.1 IMPLEMENTATION SCHEDULE

The elements of the implementation schedule are presented in table 9.1. The schedule of implementation activities will have to be observed throughout the project life cycle.

Table 9.1 ESMP Implementation Schedule

	Activity and Responsibility		Phase					
Item No.	**Environmental and Social Management**	**Responsibility**	**Pre-Construction**		**Construction**		**Operation & Maintenance**	
1.	Formal disclosure of ESMP	PCU						
2.	Develop environmental and social requirements in bidding documents	PCU/E&S Officer						
3,	Allocate budget for ESMP and recruit support staff	PCU						
4.	Stakeholder Engagements	PCU/E&S Officer						
5.	Conduct training and capacity building programmes	PCU and subject experts						
6.	Finalization and approval of project designs	Design Consultant						
7. .	Review and approval of Contractor's CESMP and implementation	PCU/E&S Officer/site Engineer						
8.	Implementation of environmental & social mitigation measures	Contractor						
9.	Supervision of pre-construction & construction activities	Site Engineer						
10.	Supervision ESMP implementation	Site Engineer/E&S Officer						
11.	Environmental &social monitoring	E&S Officer						
12..	Reporting on ESMP	PCU/E&S Officer/Contractor						

9.2 COST ESTIMATES OR BUDGET FOR ESMP IMPLEMENTATION

It has been proposed that, the cost of implementation of the mitigation measures and the monitoring plan be part of the project contract cost in chapter 7, table 7.1. However, an attempt has been made to present an initial cost estimate for the implementation of the ESMP. Table 9.1 presents the initial estimated cost.

Table 9.2 Estimated Budget for the Implementation of the ESMP

Item No.	Cost Centre (type of activity)	Responsibility	Cost Estimates (US$)
1	ESMP Disclosure	PCU	8,000.00
2	Mitigation	PCU/Contractor/E&S Officer	40,000.00
3	Monitoring	PCU/Contractor	25,000.00
4	Stakeholder Engagement	PCU	50,000.00.
5	Training and Capacity building	PCU	40,000.00
6	Implementation of GRM	PCU	25,000.00
Sub-Total			188,000.00
	Contingency (10% of sub-total)		**18,800.00**
Grand Total			**206,800.00**

10.0 PUBLIC PARTICIPATION/STAKEHOLDER ENGAGEMENT

Stakeholder consultations play a major role in identifying the potential impacts of any proposed project. Consultations with the state agencies and regulatory agencies have assisted in defining the regulatory and institutional framework within which the project should be carried out. Community consultations also assist in the identification of environmental and social risks and impacts that needs to be considered and addressed by the borrower.

The World Bank ESS 10 (stakeholder engagement and information disclosure) recognizes the importance of open and transparent engagement between the Borrower and all stakeholders affected by the project and other interest groups. To this end, the project a Stakeholder Engagement Plan (SEP) was developed as one of the preparatory documents that should guide this important activity.

Ghana's EA regulations provide for the consultation and participation of stakeholders in the Environmental Assessment process in order to ensure that their concerns and inputs are considered as part of the project design and planning.

There are enormous benefits that come with ensuring that there is an effective engagement with all stakeholders. Stakeholder engagement and participation is a process, not a single event. It provides an opportunity for all stakeholders to influence decisions that affect their lives.

The objectives of the stakeholder engagement are to;

- provide information about the project and its potential impacts to those interested in or affected by the project, and solicit their opinion in this regard;
- provide opportunities for stakeholders to make inputs into decisions on undertakings that may affect their lives
- bring local knowledge to bear on the project planning process
- provide the opportunity for stakeholders to raise issues and concerns at an earlier phase of the project planning in order to avoid conflicts during project implementation
- build a constructive relationship between proponent and stakeholders throughout the entire life cycle of the project
- facilitate the consideration of alternatives, mitigation measures and trade-offs and
- manage expectations and misconceptions regarding the project;

10.1 IDENTIFIED STAKEHOLDERS

The following categories of stakeholders were identified and engaged:

- Beneficiary District Assemblies
- Beneficiary Communities
- Traditional Authorities
- Community Leaders/representatives

Some of the key issues and responses are captured in Table 10.1 and further details of the outcome are presented in the appendix 5

10.1.1 Views, Concerns and Suggestions from Communities and Traditional Authorities

- Chiefs lamented on the abrupt end of some previous projects and advise project implemented to ensure sustainability
- Communities and chiefs should be fully involved in all project activities
- The project should enrol only committed communities into the project
- Timely and prompt execution and completion of projects
- Requested support from the in respect of farm preparatory activities
- Project should create storage and marketing opportunities for their farm produce and offtake arrangements for their cassava or gari processing factories

10.1.2 Concerns and suggestions from Municipal and District Assemblies

- Requested for more insight into project implementation procedures and their specific roles they will play in the project
- Requested for more consultations before the commencement of the project

Table 10.1 Key Issues and Responses

No	Key Issues	Responses
1	The MCE said the project will be beneficial to the communities and urge the team to consult extensively with the communities on the selection of sites for the infrastructure	The project uses a bottom-up approach for implementing all project activities in the communities and engagement with the beneficiary communities will be continuous. The project team being here currently underscores the importance of doing such engagements.

2	The path of the drain / stream should be determined so that the creation of the dam does not affect neighbouring communities who benefit from the stream especially during the rainy season	This is well noted and the design of the dugouts will be done to create enough buffer to reduce flooding risk during the peak of the rainy season.
3	DCD mentioned that the dugout may not lead to flooding of the nearby road during the rainy season. However, accidents may occur when the cattle cross the road to access the water.	The project has taken note of this and signages will be done to alert vehicles motors and pedestrians using the road
4	When will the construction start	The process of staring the project construction activities goes through a number of processes from stakeholder engagement, to designing and engaging a contractor . The designing consultant and contractors have been engaged and part of the team on the field visit. All concerns will be noted and incorporated into the design before actual construction starts. Construction will when all the engagement and consultation is done.
5	Water table at the chose location seems good but the area seems quite flat	The experts who will determine the site suitability are part of the project team. A land may seem flat but the selection will be done in such as way choose a site where enough water will collects .
6	Farmers close to the selected site should be educated to not farm there during the next season	The sites will be finalised in consultation with the communities and expert on the project. In cases where such an event occur, the necessary processes will be done so as not to disadvantage any community member or farmer.
7	The community was interested in knowing whether there is an existing market to patronize their shea produce when the facility starts operating.	The Ministry of Food and Agriculture is part of the project team. Issue of market access will be discussed with them and see the possible partnerships

		that can be established. The project team will also link up with the district assembly for such markets.
8	Will the dugout be for only livestock watering?	The objective of the dugout construction per the project implementation is to water livestock especially during the dry season. The project do not intend to promote multiple use of the dugout. Signages will also be placed to clearly state and do's and don'ts in using the water
9	Community Local labour should be utilized during construction to provide employment opportunities. The dugout should be easily accessible and safe for use by all groups including women and children.	Community labor will be the main source of labor for all constructional activities . Contractors will pay the appropriate compensation Signages will be placed, tree planting will be done to protect the banks of the dugouts to make it safer for all users
10	There should be arrangement for utilization of the facility	As per the project arrangements, Community Watershed Management Team already established will be responsible for the management of the facility
11	Community hopes that the labour for construction will be local people.	Community labor will be the main source of labor for all constructional activities. Contractors will pay the appropriate compensation
12	The women in the community hope that the site will be nearer for convenience. Community expects labour for construction from the community.	Sites will be selected in consultation with the community members and also based on expert advice. Community labor will be the main source of labor for all constructional activities .

		Contractors will pay the appropriate compensation

11.0 CONCLUSION

This Environmental and Social Management Plan covering the construction of various infrastructural projects-dugouts, staff quarters and post-harvest facilities (mini processing facilities and drying platform) has been prepared to address environmental and social issues.

It discussed all the environmental and social impacts that were identified during the ESIA phase. The report has presented the corresponding mitigation and management measure for implementation during the construction phase of the projects. Management of the proposed project has consequently put forward mitigation measures aimed at reducing, or if possible, eliminating all the impacts. The mitigation measures were based on the mitigation hierarchy of avoidance, minimization and compensation or offsetting.

This document outlined the key elements of an Environmental and Social Management Plan (ESMP) capturing the typical Environmental and Social (E&S) impacts and associated mitigation measures that need to be considered in the context of construction activities and during operation of the infrastructure. The intention of this ESMP is to assist the contractor responsible for a specific construction project in avoiding/mitigating negative E&S impacts during the planning and construction phases of the project as well as guidance to the PCU in monitoring.

The implementation of this ESMP will be a mandatory part of the construction contract so that the Contractor will be obliged to support preparation- and ensure implementation of the ESMP.

All National and International Legal and Regulatory Requirements have been factored in the ESMP for implementation and guidance, with the view to ensuring sustainable implementation of the ESMP. Stakeholders were engaged during the ESIA study and it is the intention of the proponent to continue the engagement process during the construction and operation phase of the project.

Roles and responsibilities have also been defined for all key stakeholders including, the Project Implementation Unit, the contractor, and the supervising engineer among others. Training and capacity building programme have also been incorporated in this ESMP. Adequate budget will be provided to ensure that implementation schedule is followed through without delay, this means that, the schedule for implementation of activities will be observed throughout the project life cycle. It is hoped that if the ESMP is implemented to the latter, there will be no significant adverse irreversible impacts on the environment.

It is expected that this report has sufficiently dealt with the significant issues on the ground and will therefore meet the expectations of all regulators to ensure effective implementation of the project to aid government policy of integrated natural resource management.

12.0 ANNEXES

Photos of the selected sites and engagement with communities and stakeholders are presented below.

ANNEX 1

Photos of Site Visits and Community Engagements

Proposed Funsi Dugout site

Proposed Bonaa Site for Dugout

Dabori meeting with opinion leaders

Meeting with EPA, Wa

Jang dugout site

Sentie Dugout site (Constructed under SLWMP)

Soma community meeting

Viaha Site

Chassia Community meeting

Chassia Dugout Site


Meeting with the Contractors 22/01/2024


Meeting with Sissala East Municipal Assembly 22/01/2024

Meeting with Sakalu community 22/01/2024

Meeting with Jitong community

Jitong dugout site

Meeting with Kuroboi community

Kuroboi dugout site

Saggu dugout site

Saggu community meeting

Soma processing plant

Sakalu processing plant

Dasima community meeting

Kojoperi dugout site

Kojoperi community meeting

Meeting at Daffiama-Bussie-Issa District Assembly

Viaha dugout site

Meeting at Sori No 1 cassava processing plant

Meeting with opinion leaders at Larabanga

Larabanga dugout site

Funsi dugout site

ANNEX 2

Stakeholder Consultation MEETING LIST of Attendance-Team A

GLRSSMP-EPA PCU FIELD VISIT MEETING AT TUMU. – ATTENDANCE SHEET, 22-01-2024

Name	ORG.	POSITION	TEL/EMAIL
1. DYSON JUMPAH	EEMC	PROJECT DIRECTOR/ENV. S	0244649873
2. Ana Bruwa Mbir	EEMC		0540710571
3. Akangua Oteng Kwasi	EEMC		
4. John Donkoh	EPA	Supervisor	0244918885
		Apol HO	0269111161
5. Umaru Farouk Bubiure	WD	Project Focal Point	0244358371
6. Seth Wakabu	EPA	Area Head	0501301605
7. Osei Karikari	EPA - PCU	Safeguards Officer	0501301413
8. Isaac C. Acquah	EPA - PCC	PC/Director	0501301385
9. Richard Osei Agyemang	EEMC	Civil Engineer	0244609635
10. Derek LUNGREN	CDPF/WDPC	Technician	0245869372
11. Balima y Albert	CDPF/WDPC	Technician	053 490 9097
12. LOREN LUNGREN	CDPF/WDPC	"	053 463 8441
13. Clark LUNGREN	CDPF-WPDC	Coordinative to Waterfront contact for CDPF-WPDC	(226)07105078 cdpfwatbika@yahoo.com.
14. MBAYSIGA Polycarp	MD/GRR	Park Manager	0240611348

GHANA LANDSCAPE RESTORATION AND SMALL-SCALE MINING PROJECT (GLRSSMP)-EPA PCU

Project Works and Infrastructural Consultants for the Ghana Landscape Restoration and Small-Scale Mining Project-EPA PCU

(Consultancy Service to Design and Supervise Small Infrastructural Works under the Project and Conduct the Environmental and Social Assessments and Monitoring) (GLRSSMP)

STAKEHOLDER CONSULTATION MEETING - ATTENDANCE SHEET

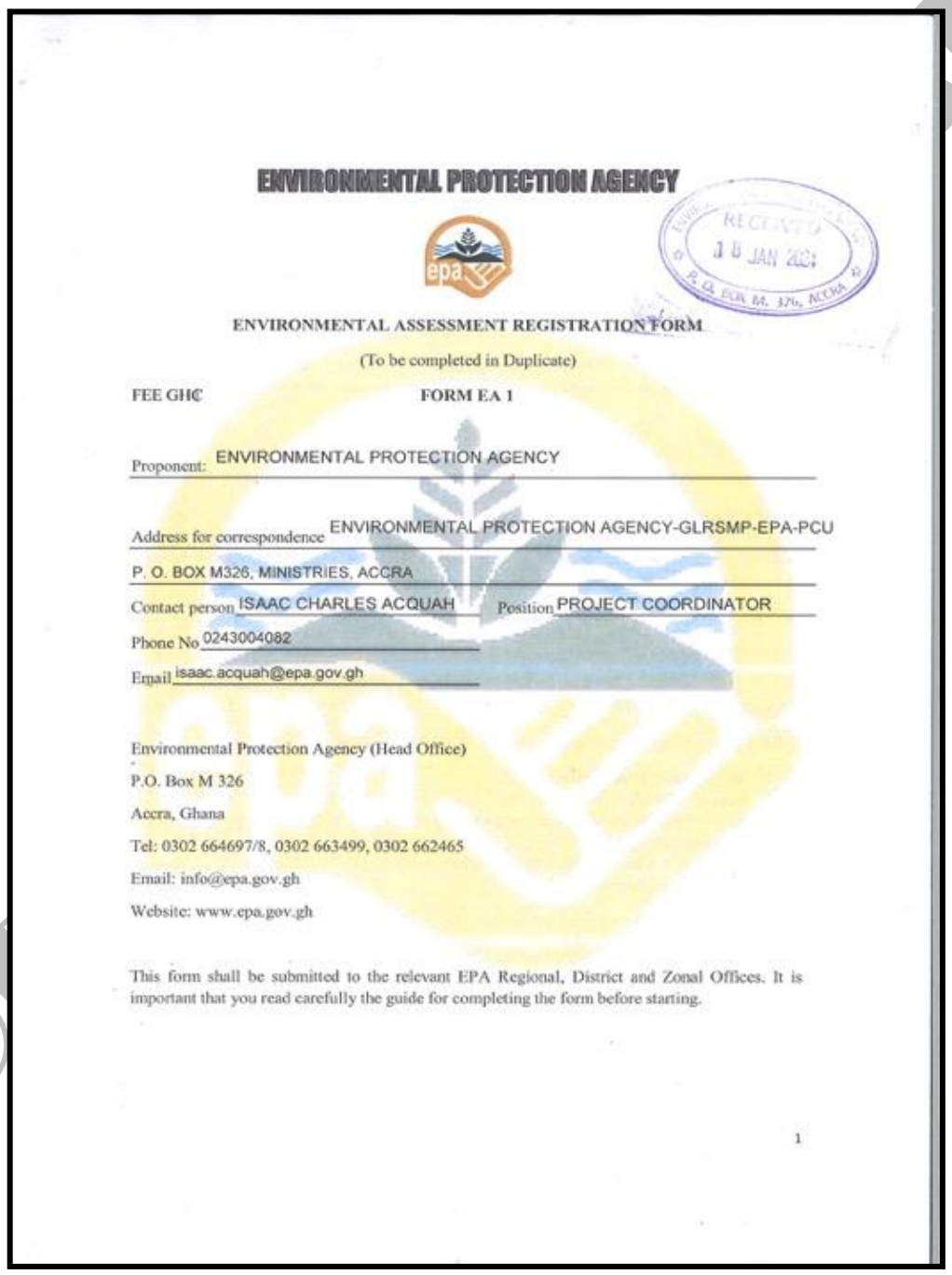
STAKEHOLDER: VENUE: EPA, WA DATE: 25/01/2024

No.	Name	Designation	Organization	Tel. No	Email	Signature
1	Ama Brewa Mbir		EEMC	0540710571	amabir2000@gmail.com	[signature]
2	Emmanuel Lignule	Ag. Regional Director	EPA	0505883235	lignule@yahoo.co.uk	[signature]
3	John Donkoh		EPA - PCU	0269111161	Johndonkoh7@gmail.com	[signature]
4	Osei Karikari	Safeguards Specialists	EPA - PCU	0501301413	oseikarikari63@gmail.com	[signature]
5	TONY ASARE	Project Architect	EEMC	024423405	tony.asare@telkomsa.net	[signature]
6	ENGR. ARANGUA OTENG KWASI	Construction manager	EEMC	0244918885	otensco30@yahoo.com	[signature]
7	Uman Farouk D	Forest Range	WD	0244358871	Sangabumli@gmail.com	[signature]
8	DYSON Jumpah	Proj Dir EEMC	EEMC	0244644073	dyson.jumpah@gmail.com	[signature]
9	Justin Batasoro Dalgpin	APO	EPA	0248360959	dalgpirijustin@gmail.com	[signature]
10	Abudu Musah	APO	EPA	0242846686	amuscold@yahoo.com	[signature]

ANNEX 3

Registration of Subprojects for EPA Permit-Completed forms EA1 and EA2

PER/ESMP for Small Community and FC Infrastructure in UE and UW Regions



ENVIRONMENTAL PROTECTION AGENCY

RECEIVED 18 JAN 2021 P. O. BOX M. 326, ACCRA

ENVIRONMENTAL ASSESSMENT REGISTRATION FORM

(To be completed in Duplicate)

FEE GH₵ **FORM EA 1**

Proponent: ENVIRONMENTAL PROTECTION AGENCY

Address for correspondence ENVIRONMENTAL PROTECTION AGENCY-GLRSMP-EPA-PCU

P. O. BOX M326, MINISTRIES, ACCRA

Contact person ISAAC CHARLES ACQUAH Position PROJECT COORDINATOR

Phone No 0243004082

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Environmental Protection Agency (Head Office)

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Accra, Ghana

Tel: 0302 664697/8, 0302 663499, 0302 662465

Email: info@epa.gov.gh

Website: www.epa.gov.gh

This form shall be submitted to the relevant EPA Regional, District and Zonal Offices. It is important that you read carefully the guide for completing the form before starting.

1

GUIDE FOR COMPLETING AN ENVIRONMENTAL ASSESSMENT REGISTRATION FORM

The Environmental Assessment Registration Form is designed to provide enough relevant information to enable the EPA to set an appropriate level of assessment for proposal referred to it. Failure to provide detailed information in a comprehensive manner may delay the assessment process. It is not expected that this form will be appropriate for all purposes and, depending on your proposal, a lengthier document may be necessary in addition to this form.

PROPOSAL

A simple, brief description of the proposal or proposed undertaking is required and must include: input processes, end results, outputs, quantities and timing. Please include flow diagram if available.

LOCATION

A site/block plan is essential.

It should indicate the geographical coordinates of site (Longitude and Latitude), evaluation and slope of the site, any nearby areas or features of environmental significance (e.g. proposed or declared reserves, water courses, wetlands) and adjacent land uses, including the nearest homes or areas zoned residential.

SERVICES

Details of water supply, storm water drainage, power corridors, access to and impact on roads and transport can all be significant and should be noted where relevant.

ENVIRONMENTAL IMPACT

Criteria for assessing a project and setting a level of assessment are:

1. The character of the environment
2. The potential impact of the proposal
3. Resilience of the environment to cope with change
4. environmental impacts
5. The input of other statutory decision-making bodies
6. Degree of public interest.

The following potential environmental impacts may be relevant:

1. Impacts on geomorphology, land stability and landscape
2. Impacts on drainage and water quality (surface and ground)
3. Impacts on biota
4. Impacts on access and transport systems
5. Impacts on existing services including power, water and telephone
6. Impacts on existing community facilities
7. Impacts on existing contingency plans for safety and emergency services.
8. Impacts on emission (Gas, Dust, Noise and heat)

9. Management of solid and liquid waste and storm water
10. Impacts on adjacent land uses including any conservation and recreational aspects
11. Impacts of constructional and operational activities
12. Visual impacts
13. Social impacts

Proponents would be required to pay appropriate processing and permit fees in accordance with the current existing LI for fees and charges (Amendment) Instruments.

1. PROPOSED UNDERTAKING/DEVELOPMENT

Title of proposal (general classification of undertaking)
Small community and FC Infrastructure-Upper East and Upper West Regions

Description of proposed undertaking including unit processes (flow diagram), raw materials, list of chemicals (source, types and quantities), storage facilities, waste by-products (soil, liquid and gaseous)

1 Design, Construction and Supervision of Two room quarters for FSD/WD staff to manage East Wildlife Corridor and Six
2.Design, Develop and supervise the construction of internal Access Tracks/Trails with appropriate culverts
Irish crossings and spot improvements to facilitate ecological monitoring: Tent camp-Satelite Camp 1(12km)
and Yelbie-Timmie (10km)
3. Establish 2 Dawadawa Processing and traiing Centres to train women in hygienic processing and marketing
4.Four (4) in no processing facilities Viela, Sheiga, Bulu and Sakalu in the Wa East, Bawku West, Sisala West
and Sissala East Districts respectively
5. Dugout (Livestock watering at Chassia in the Wa East District

Scope of proposal (size of labor force, equipment and machinery, installed production capacity, product type, area covered by facility/proposal, market)

The scope of the above proposed projects will be provided after the design of the planned works with requisite
standards/codes and in conformity to general civil and agricultural engineering and architectural practice and
World Bank Environment and Social Safeguards.
Additionally, detailed architectural designs and drawings and costed bills of quantities will be prepared.

2. PROJECT SITE

(Location attach a site plan/map)

Plot/House No Exact locations yet to be determined Street/Area Name.....

Town Tilli,Gbele Resource Reserve, Vieha, Sheiga District..... Region Upper East & Upper West

Major Landmarks (if any).....

Current Zoning.....

Distance to the nearest residential and or other facilities (in meters) provide coordinates (where possible)

.....

.....

Adjacent land uses (existing and proposed) – (Describe in details and attach pictures)

Forest Reserve

.....

.....

Site description (immediate activities and adjacent land uses should be described)

1. The location is inside the Forest Reserve and is heavily degraded, not much vegetation
2. Gbele Reserve-small footprint, similar works were done under SLWMP
3. The site description for the location where the 2 Dawadawa Processing and training Centres will be established will be provided after the siteselection has been done.
4. The site for the Processing facility at Vieha hasan existing old mosque that is not in use.
5. The site for the Processing facility at Sheiga is undeveloped and has a well which is not in use.
6 The site for the Processing facility at Bullu is a flat land with sparse vegetation.
7. The site for the Processing facility at Sakalu is undeveloped with some shrubs

3. INFRACTRUCTURE AND UTILITIES

Structures (building and other facilities proposed or existing on site)

See attached Table 2 indicating the list of small community and FC infrastructure and other facilities proposed or existing on site.

Access to water (source, quantity)

Source and quantity of water will be determined during design phase

.....

Access to power (type, source and quantity)

Access to power, type, source and quantity will be determined during design phase.

.....

Draining provision in the project area

The draining provision in the project area will be defined during hte design phase

Nearness to water body

Nearness to waterbody will be indicated after preliminary investigations and design pahse activities.

Access road to project site

Access road to the project site will be described after preliminary site investigations and design phase activities.

Other major utilities proposed or existing on site (eg. sewerage, etc)

Other major utilites propsoed or existing on site will be stipulated after design phase activities.

4. ENVIRONMENTAL IMPACTS

Potential environmental impacts of proposed undertaking (both constructional and operational phases)

CONSTRUCTION PHASE	OPERATION PHASE
Biodiversity:-Noise pollution emanating from vehicular movement are like to scare away animals. -Basic infrastructure works in the national forests and protected areas could lead to ecosystem disturbances and loss of natural habitats eg. construction of tracks and trails, satelite camps for rangers. -Construction of water systems eg dugouts could have impacts on cultural heritage if their siting is not adequately discussed with the communities Air Quality-noise and emissions from equipment during construction of water systems eg. dugouts	Biodiversity:-Promotion of tourism and habitat enhancement activities may affect the natural environment eg waste disposal, noise could affect natural habitats Soils-Agriculture and agroforestry activities may impact soil fertility. -Changes in soil nutrient cycles (fertility and carbon storage capacity -Increased soil erosion due to repeated disturbances Land tenure and ownership:- Conflicts in land claims -Increased values in land prices leading to economic displacement. -Lack of transparency in rules for benefit sharing between landowners and farmer tenants.

5. **CONCERNS**

Views of immediate adjourning neighbor's and relevant stakeholders (if applicable provide evidence of consultation to facilitate identification of key issues/impacts)

INDICATE PERSONS / INSTITUTIONS CONSULTED AND THEIR VIEWS AND CONCERNS IN THE TABLE BELOW				
No	Name	Contact Tel/ Email	Location In Relation To (North South East West) Project Site	Concerns / Issues
1	Abdul Raheem Bata	Chief	Bullu/Sissala West	
2	Mahama Bontie	Chief	Sakalu/Sissal East	
3	Ben Anyongi	Assembly member	Bawku West	
4	Carlos Ndeogo	Secretary, CWMT	Sheiga/Bawku West	
5	Yusif Bangha	Unit Com Chair	Sisala East	

6. **MANAGEMENT OF IMPACTS AND ENVIRONMENTAL ENHANCEMENT MEASURES**

CONSTRUCTION PHASE	OPERATION PHASE
-Ensure proper maintenance of equipment -Sprinkling of water by machine operators to suppress dust if facility is close to communities, -Consult with communities on site selection for water infrastructure (dugouts) -Establishment of 10-metre wide green fire breaks along targeted forest reserves and green fire breaks within reserves -Undertake enrichment palnting of degraded parts of targeted forest reserve -Careful environmental planning (route alignment selection) and close supervision and monitoring of grading and construction works to minimize impacts, including on animals and vegetation, eg erosion sedimentation-laden runoff, dust and noise management.	

7. **ATTACHMENTS**

Tick appropriate box indicating that the following required documents have been attached.

- ☐ Authentic site plan (signed by a licensed surveyor and certified by survey dept.)
- ☐ Block plan of the site
- ☐ Photographs of the site
- ☐ Zoning letter from Town and Country Planning Department (TCPD)
- ☐ No objection letter from the National Petroleum Authority (NPA) (For Petroleum Products retail outlets (FSS & LPG))

8. **DECLARATIONS**

I, ISAAC CHARLES ACQUAH .....hereby declare that the information provided on this form is true to the best of my knowledge and shall provide any additional information that shall come to my notice in the course of processing the application. I also declare that the information provided is true.

.....

.....

..... 17th January 2024

Signature Date

Use additional sheets where the spaces provided are inadequate.

ANNEX 4

Notifications from EPA in Response to Subprojects Registration applications

Notifications from EPA -PER/ESMP for Small Community FC Infrastructure -UE & UW

Tel: (0302) 664697 / 664698 / 662465
667524 / 0289673980 / 1 / 2
Fax: 233 (0302) 662690
E-mail: info@epa.gov.gh
Ghana Post (GPS): GA-107-1998

Environmental Protection Agency
P. O. Box MB 326
Ministries Post Office
Accra, Ghana
Website: http://www.epa.gov.gh

Our Ref: CA/737/01/02

8th February 2024

The Project Coordinator
Ghana Landscape Restoration and Small-Scale Mining Project
EPA-Project Coordinating Unit
P. O. Box M 326
Accra

Dear Sir,

PRELIMINARY ENVIRONMENTAL ASSESSMENT (PEA)
PROPOSED SMALL COMMUNITY AND FC INFRASTRUCTURE PROJECT LOCATED IN THE UPPER EAST AND UPPER WEST REGIONS

We acknowledge receipt of the completed Environmental Assessment Registration Form EA1 on the above proposal submitted to the Agency for the purpose of obtaining environmental approval, in accordance with the Environmental Assessment Regulations, 1999 (LI 1652).

The project has been duly registered as one for which a Preliminary Environmental Assessment (PEA) must be carried out to facilitate understanding of the likely implications of the proposed project on the environment.

The following areas/issues among others must be considered in the study.

- Detailed description of project activities including all project infrastructure components
- Relevant legal and regulatory requirements
- Impact identification and mitigation measures for all phases of the project
- Sources of raw materials, unit quantities required, storage and handling.
- Waste generation and management issues including all waste treatment systems
- Baseline environmental conditions
- Occupational and public health and safety concerns
- Consultation with relevant stakeholders, among others

The information must be packaged in a Preliminary Environmental Report (PER) and five (5) hard copies of the report submitted to the Agency in line with Environmental Assessment Regulations, 1999 (LI 1652), and the Ghana EIA Procedures.

Please find attached a format to guide the preparation of PER.

Do not hesitate to contact the EPA Head Office **(Room 304/5)** or the undersigned on **(0501301447)** or via **E-mail:** eaa.dept@epa.gov.gh for any assistance or guidance you may require in this regard.

Yours faithfully,

ANDRIANA N.K. NELSON
AG. DIRECTOR/EAA UNIT
FOR: EXECUTIVE DIRECTOR

Attached
Cc: Director/EA & M Department, Head Office, Accra
Director/EPA Upper East Regional Office, Bolgatanga
Director/EPA Upper West Regional Office, Wa .

ANNEX 5

Outcome of Stakeholder Engagement

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
21st January, 2024	Sissala East	District Assembly			The MCE said the project will be beneficial to the communities and urge the team to consult extensively with the communities on the selection of sites for the infrastructure	The project uses a bottom-up approach for implementing all project activities in the communities and engagement with the beneficiary communities will be continuous. The project team being here currently underscores the importance of doing such engagements.	MCE-Hon Fuseini Yakubu-Botong (0201846928)
21st January, 2024		Sakalu (Sata)	Sheanut / Groundnut processing plant	10º40'49.18123"N - 2º1'59.01496" W	**Selected site is close to a warehouse / storage facility for shea nuts which is ideal for the project** We hope the facility will be constructed for the community	The facility will be solely owned and managed by the community	**Mahama Bontie-Chief Namoiu Bayoro-Elder** Nansia Botong Banin-Elder Abu Gbasu-Elder Beirinibe Subar-Elder
21st January, 2024		Kuroboi	Optimized dugout	10º35'9.30451" N -	The soil at the location is clayey and perfect for sustaining the pond The dugout can serve multiple uses	N/A	Wouda Salia-Chief

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
				1º52'3.50798" W	We are ready to donate any amount of land for this project	N/A	Gbanha Seidu- Chief linguist Bawah Chakilia Fatawu Committee secretary 0547379775 Adams Kwesi 0256906266
22nd January, 2024	Sissala West	Jitong (Duu)	Optimized dugout	10º58'53.59908 "N - 2º7'5.43938"W	The slope at the site is ideal for the dugout and the water breakout is also easy. The soil is clayey and has great water retention. The path of the drain / stream should be determined so that the creation of the dam does not affect neighbouring communities who benefit from the stream especially during the rainy season	This is well noted and the design of the dugouts will be done to create enough buffer to reduce flooding risk during peak seasons	Karim Munaha Baliwie Chief- 0257623524 Moro Venu PA to Chief- 0256448312 Mallam Beltieh Mohammed Elder- 0553762139
22nd January, 2024		Bullu	Optimized dugout	10º52'53.6608" N - 2º4'5.43938"W	The dugout can serve multiple uses We are ready to donate any amount of land for this project	N/A	Koro Abdul Baatah Chief 0244887555 Kashidu Bahara Chief's Elder 0547625514 Sumani Saratu Kangiwonh women group 0537221159

Date	District	Site/Location	Facility	GPS Location	Comments/issues	Responses	Key Stakeholders Engaged
							Zakaria Mariam Bulujafanli women group 0248582615
22nd January, 2024		Dasima	Optimised dugout	$10^0$37'44''n $2^0$12'54''w	We support the development of dugout for the community since water is always an issue during the long dry spells The water can even be used by other nearby communities	N/A	Mamuru Gbemmie Opinion leader 0248014581 Yakubu Azakia Women leader 0536701336 Abu Fatawu Teacher 0207881144 Kutole Issah-Linguist (0541690647) Baryorbo Kassim-Chief (0247222279)
23rd January, 2024	Daffiama Bussie Issa	District Assemby			The District Coordinating Director promised to be actively involved in the monitoring of the construction of the projects. DCD mentioned that the dugout may not lead to flooding of the nearby road during the rainy season. However, accidents may occur when the cattle cross the road to access the water.	The project has taken note of this and signages will be done to alert vehicles , motors and	Nadi Imoro Samda DCE 0242260400 nadiimorosamda@yahoo.com Atchulo M. Napadow DCD

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
						pedestrians using the road	0243564031 atchulonapadow@gmail.com
23rd January, 2024		Kojoperi	Optimised dugout	10º21'53.51938"N - 2º13'45.85119" W	The slope of the valley at the site is good for creating a dam. When will the construction start	The process of staring the project construction activities goes through a number of processes from stakeholder engagement, to designing and engaging a contractor . The designing consultant and contractors have been engaged and part of the team on the field visit. All concerns will be noted and incorporated into the design before actual construction starts. Construction will when all the engagement and consultation is done.	Mahama Jinanwua Chief 0595071851 Yahaya Katoana Elder (Okyeame) 0246130499 Alhassan Mahamudu Tindaana 0545194532
24th January, 2024	Wa East	Funsi	Optimised dugout	10º16'16.3719" N - 1º58'52.97411" W	The area has good water retention and is favourable for the dugout. The location of the rocks at the site is good for a breakout and the area will provide a good spillway for the water.	N/A	

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
24th January, 2024		Vieha	Processing facility	10º1'12.00656" N - 2º16'51.0548" W	**The women group are okay with the site**	N/A	Yahaya Mahama- Linguist Grace Timothy- Women Group Leader Catherine Kumbotey Mahama Boguye
24th January, 2024		Saggu	Dugout	9º52'53.53083" N - 2º19'24.53651" W	The selected site has a good water table and seems suitable for the dugout. Farmers close to the selected site should be educated to not farm there during the next season The chief indicated that the land is available for the project to benefit the community	The sites will be finalised in consultation with the communities and expert on the project. In cases where such an event occurs, the necessary processes will be done so as not to disadvantage any community member or farmer.	Adamu Abubakari Chief 0551905655 Saawe Edward Organizer 0530053674 Amadu Sakara Chairman 0548702304
25th January, 2024		Bonaa	Processing facility	9º53'52.66906" N - 2º17'4.18535" W	Location is favourable for the plant. The community also promised to support the project as much as possible during and after construction	N/A	Naa Alhaji Kadir Seidu Sahia Chief 0249631118 Naa Bukari Dramani Chief

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
							Naa Salia Dramani Chief
25th January, 2024		Chassia	Dugout	9º44'9.6034"N - 2º7'10.97437" W	Water table at the chose location seems good but the area seems quite flat	The experts who will determine the site suitability are part of the project team. A land may seem flat but the selection will be done in such as way to choose a site where enough water will collects	Imoru Sapara Opinion Leader 0544023793 Osman Jamal-deen Outgoing Assemblyman 0248243006 Issahaku Alhassan Unit Committee member 0256575486
25th January, 2024		Wa	Meeting with EPA		Necessary permits and licenses should be obtained	Noted	Emmanuel Lignule EPA, Wa – Ag. Regional Director 0505883235 lignule@yahoo.co.uk
25th January, 2024		Soma	Processing facility	9º27'58.50159" N - 2º18'52.652"W	The community was interested in knowing whether there is an existing market to patronize their shea produce when the facility starts operating.	The Ministry of Food and Agriculture is part of the project team. Issue of market access will be discussed with them and see the possible partnerships that can be established. The project	Harakuh Kpenkpenne Acting Vagla Chief 0256941743 Kipo Kaniti Kontihene

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
					First site selected was not favourable as it was not close to electricity supply. An alternate site was selected	team will also link up with the district assembly for such markets.	Charles Gbolo Brantehene 0551938031 Issa Wiche Women Committee 0547604228
30th January, 2024	West Gonja	Larabanga	Sheanut Processing Plant	9º12'34.43646" N - 1º51'22.82686" W	▪ The area has a lot of shea trees and the plant will help improved the livelihoods of the farmers particularly the women ▪ The community willingly donate the land for the project	N/A	▪ **Saddiq ue Ayuba-Chief Imam-(054546 06630)** ▪ **Yakubu Ibrahi m-Chief's Rep (024376 3443)** Seidu Abubakari-Abusco-Assemblyman (0242266024)
27th January, 2024	Builsa South	Musidema	Optimized Dugout	10.4916N 1.3880W	▪ The community welcome the project and will donate land ▪ The benefit will be shared with nearby communities	N/A	▪ Peter Akantey – Agric Extensi on Officer

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
							(0247480571) ▪ Hon Abass Bugri (Assembly Member)
27th January, 2024		Gbedemblisi	Optimized Dugout	10.3278N 1.2481W	▪ We have challenges with water and the project will help ▪ Will the dugout be for only livestock watering?	The objective of the dugout construction per the project implementation is to water livestock especially during the dry season. The project do not intend to promote multiple use of the dugout. Signages will also be placed to clearly state and do's and don'ts in using the water	Nimatu Braimah-women group leader Nvariwai Amobil Ataakayine Aloka Akanyin Akum
27th January, 2024	Mamprusi Moagduri	Kubori	Drying Platform	10.2268N 1.2841W	▪ It will help extend the life shelf of our produce ▪ The community hopes the platform will be durable enough to withstand weather and high usage over	N/A	Abubakari Madiz – CREMA Chairman – 0245374481

Date	District	Site/Location	Facility	GPS Location	Comments/issues	Responses	Key Stakeholders Engaged
					many years. The platform design should use robust materials to ensure a long functional lifespan.		Adam Mahama – Former Chairman (CREMA) – 0245368517
		Tantala	Optimized Dugout	10.2071N 1.5383W / 10.2017N 1.5338W	Community Local labour should be utilized during construction to provide employment opportunities. The dugout should be easily accessible and safe for use by all groups including women and children. Tree planting around the dugout	Community labour will be the main source of labour for all constructional activities . Contractors will pay the appropriate compensation Signages will be placed, tree planting will be done to protect the banks of the dugouts to make it safer for all users	Amadu Salifu – Chairman (CREMA) - 0247283644
27th January, 2024		Dabozesi	Optimized Dugout	10.1979N 1.5142W	The proposed project will help livestock watering during the dry season	N/A	Duuit John – Teacher – 0240306924 Sulley Oxygen – Agric Extension Agent - 0541590048
27th January, 2024		Jadema	Processing facility	10.3297N 1.1583W	The women shea nut producers are eager for training opportunities to improve their skills in using the equipment and maximizing shea butter output.	This is well noted as training in the use of the processing facility is part of the project activities.	Fusseini Yakubu – Assembly Man – 0245953477

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
					There should be arrangement for utilization of the facility	As per the project arrangements, the Community Watershed Management Team which has already been established will be responsible for the management of the facility	Abudu Alhassan – Elder – 0559461681
28th January, 2024	Bawku West	Tilli	WD/FSD Staff Quarters	10.8774N 0.5822W	The facility when completed will help in the management of natural resources in the corridor	N/A	Mr. Abambila – FSD Staff- 0546365558 John Akugre – Community leader - 0246151054
28th January, 2024		Sheiga	Processing Facility	10.7591N 0.5078W	Women are satisfied with the chosen location of the mini processing plant, indicating a sense of safety and security.	N/A	Bertrand Awuah – AEA- 0249803292
28th January, 2024		Kusanaba	Optimized Dugout	10.7603N 0.4908W	Site is located in a valley and makes it quite suitable for a Dugout. The community is happy to host the dugout on behalf of the CREMA. Community hopes that the labour for construction will be local people.	Community labor will be the main source of labor for all constructional activities. Contractors will pay the appropriate compensation	Ben Anyorigi – CRMC Chairman - 0249406943

Date	**District**	**Site/Location**	**Facility**	**GPS Location**	**Comments/issues**	**Responses**	**Key Stakeholders Engaged**
28th January, 2024		Nangode	Optimized Dugout	10.8525N 0.6579W / 10.8532N 0.6666W	The community appreciates the project and has earmarked site for the contractor The women in the community hope that the site will be nearer for convenience. Community expects labour for construction from the community.	Sites will be selected in consultation with the community members and also based on expert advice. Community labour will be the main source of labour for all constructional activities . Contractors will pay the appropriate compensation	Chief Sakpaar – Chief's Rep – 0246697191 Yamboriga Kagre – Community Leader – 0256522614 Roger Daniel – CREMA – 0246475896 Yamga Henry – Assembly Man – 0243362633 Agnes Anamoe – DCE – 0248970261 Ditamina Comfort – Women Rep - 0541816853.

ANNEX 6

Template for Land Donation

XXX COMMUNITY

DEED OF GIFT

BETWEEN

XXX
(DONOR)

AND

XXX
(DONEE)

1.0 DEED OF GIFT

This Deed of Gift (hereafter called the "Agreement") made on this ……. day of …… 20…….. is in respect of a parcel of land located in the xxx community of the xxx Traditional Area in the xxx District of the xxx Region of the Republic of Ghana between:

1.1 **The xxx community acting per its lawful representative, xxx, hereafter called the "Donor", and which expression shall where the context so requires or admits, include its agents, successors-in-title and assignees), with the consent and concurrence of the Principal Elders of the xxx Traditional Area, whose consent and concurrence is essential for the validity of this Agreement and which consent and concurrence are testified to by the execution of this Agreement) on one part;**

and

1.2 **The xxx hereafter called the "Donee", which expression shall where the context so admits or requires include its agents, successors-in-title and assignees) on the other part.**

Together referred to as "Parties" and individually as a "Party".

RECITALS

A. **WHEREAS xxx is one of many communities under the xxx Traditional Area.**

B. **WHEREAS the Government of Ghana is implementing the World Bank-funded Ghana Landscape Restoration and Small-scale Mining Project (GLRSSMP) which has one of its core interventions focusing on strengthening the sustainable management of forest landscapes for biodiversity conservation and ecosystem services in targeted communities in the savannah and cocoa forest landscapes, including the xxx community.**

C. **WHEREAS the Donee, as one of the implementing agencies of GLRSSMP, is responsible for implementing sub-component activities of GLRSSMP involving the xxx**

D. **WHEREAS pursuant to implementing the said sub-component activities, it was agreed that xxx (hereafter referred to as the "Project") will be established in the xxx community.**

E. **WHEREAS the Donor is the Chief of xxx community, and the customarily recognised custodian of a parcel of land situate in the xxx community in the xxx Traditional Area in the xxx District in the xxx Region of Ghana, with an area of ---- ----- acres (hereafter referred to as the "Land"), and more particularly described in the schedule hereto and delineated on the attached Site Plan.**

F. **WHEREAS the Donor, in consultation with the x xxcommunity people and elders, as well as the Principal Elders of the xxx Traditional Area, have voluntarily donated the Land in support of the Project.**

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

2.0 REPRESENTATIONS AND WARRANTIES

The **Donor** warrants that:

2.1 **He has the capacity to enter into this Agreement on behalf of the xxx community;**

2.2 The land being donated is a community land, and is free of all encumbrances and encroachment of any form or shape;

2.3 The decision to donate the Land was made in consultation with the xxx community people and elders, as well as the Principal Elders of the xxx Traditional Area;

2.4 The amount of land being donated is minor and will not reduce the xxx community's remaining land area below that required to maintain the community people's livelihoods at current levels;

2.5 He and the people of xxx community have been appropriately informed and consulted about the Project and its impacts, its land requirements, and its alternative activity sites, as well as rights to compensation for the Land if it were not donated.

2.6 He is aware that refusal to proceed with the donation of the Land is an option, and that execution of this Agreement is a testimony of their willingness to proceed with the donation;

2.7 No household has been relocated, or will be relocated as a direct or indirect result of the donation;

The **Donee** warrants that:

2.8 They have conducted the required due diligence, and confirm that the land being donated is free of all encumbrances and encroachment.

2.9 No household has been relocated, or will be relocated as a direct or indirect result of the donation;

3.0 COVENANTS OF THE DONOR

3.1 To provide the Donee with the required consent and assist with, at the cost of the Donee, the registration of this Deed of Gift in the name of the Donee, at the Ghana Lands Commission.

3.2 To ensure that the Donee develops and operates the Project on the Land without interruption by the Donor or any persons acting on behalf of the Donor.

4.0 COVENANTS OF THE DONEE

4.1 To use the Land solely for the development of the Project, as agreed by the Parties.

4.2 To conduct all Environmental and Social (E&S) risks and impacts assessments relevant to the Project, and design mitigation measures commensurate to the risks and impacts identified, in consultation with relevant stakeholders, including the Donor and members of the xxx community.

4.3 To secure all statutory permits, and comply with all legal requirements for the establishment and operation of the Project, from the Government agencies concerned.

4.4 Not to assign, sublet or otherwise part with possession of the Land or any part thereof.

5.0 THE PARTIES HEREIN AGREE that:

5.1 Where the Donee determines that the Land is no longer needed for the intended purpose of the Project, the Donee shall, in consultation with the Lands Commission, return the Land to the Donor in a tenable state.

5.2 The Land, and all rights to it afforded to the Donee by virtue of the donation, shall automatically terminate and revert to the Donor, in the event that the Donee alters the agreed use of the Land without any prior consultation with, and written consent of the Donor.

5.3 Where the donation and this Agreement, by extension, terminate per **Clauses 5.1** and **5.2**, the Land shall revert to its original status as a xxx community land as was recognised prior to the donation.

5.4 If any covenant on either Party's part herein contained is not performed or observed, the other Party shall give to the defaulting Party reasonable notice in writing but not less than two (2) months ("**the Notice Period**") for the defaulting Party to make good the default. Should the defaulting Party fail to make good the default within the Notice Period, the other Party shall refer the issue to the Grievance Redress Mechanism (GRM) established under the GLRSSMP for redress, provided that the said GRM is still in force, or the agreed dispute resolution procedure under **Section 8.0** of this Agreement, where the said GRM is no longer in force.

5.5 **Any notice required to be given by either Party hereunder shall be in writing and shall be considered validly given when delivered by hand or sent by prepaid post to either Party or to their last known physical address per Section 6.0 of this Agreement.**

6.0 ADDRESSES OF THE PARTIES

Address of Donor	Address of Donee
Nana Awuni Karim II P. O. Box…… ……	Ministry of Food and Agriculture P.O. Box 14 Ministries, Accra

7.0 VARIATION

No variation or amendment of this Agreement or oral promise or commitment related to it shall be valid unless committed in writing and signed by or on behalf of the Parties.

8.0 DISPUTE RESOLUTION

Any dispute, controversy, claim or difference of opinion between the Parties or any issue arising out of or relating to this the donated Land shall be settled amicably within 30 days by the Parties. Where the dispute is not settled amicably within 30 days, the Parties agree to submit the dispute for final settlement by arbitration by a sole arbitrator. In the event that the Parties are unable to appoint a sole arbitrator within two (2) weeks of the decision to refer the matter to arbitration, the matter shall be referred to the Ghana

Arbitration Centre for appointment of the arbitrator. Where a dispute is not arbitrable, the jurisdiction of the Courts of the Republic of Ghana shall be invoked for the settlement of such dispute by the aggrieved Party.

9.0 GOVERNING LAW

This Agreement, its interpretation, performance and the enforcement of the rights and remedies available to either Parties hereto shall be construed by and in accordance with the Laws of the Republic of Ghana.

IN WITNESSWHEREOF the Parties hereto have hereunto set their hands, names and common seal the day and year first above written.

SIGNED BY DONOR:

xxx
Chief of xxx Community
Address: _____

Signature: _____

In the presence of (Donor's witnesses):

1. Name:_____

Designation:_____
Address:_____

Signature: _____

2. Name: _____

Designation:_____

Address: _____

Signature: _____

After the contents herein have been read over, interpreted and explained to them respectively by……
…..
… of ……(address and mobile number of interpreter) in the……..language and they each seemed perfectly to understand and approve of the same before making their marks respectively.

SIGNED FOR AND ON BEHALF OF DONEE BY:

Name:_____

Designation:_____
Address: _____

Signature: _____

In the presence of (Donee's witnesses):

1. Name:_____

Designation:_____
Address:_____

Signature: _____

2. Name: _____

Designation:_____

Address: _____

Signature: _____

OATH OF RECORDING OFFICER

The content of this Agreement has been fully read and explained to both Parties and their witnesses and they confirm that they clearly understood all the terms in this Agreement and all the essential features of the Agreement. Both Parties therefore signed this Agreement in my presence.

(signed) .....

Date .....

CERTIFICATE

I, ..., officer of the Customary Land Secretariat for the **xxx STOOL** in the xxx Region of Ghana, hereby certify that the above record of a transfer of an interest in land under customary law incorporates the essential features of the transaction sought to be effected.

.....

(name)

Officer of the xxx Customary Land Secretariat

Dated at..... this.....day of..... , 20.....

OATH OF PROOF

I.....

of ..... (*full name and address of deponent*), make Oath and say that on the ..... day of ..... 20....., I was present and saw the within-named DONOR duly execute the Instrument now produced

to me and marked "A" and that the DONOR can read and write (*where a party cannot read and write, a jurat is required*)—:
SWORN AT …… THIS……DAY OF…….. 20.....

DEPONENT (Witness of Donor)

BEFORE ME

……..
REGISTRAR OF LANDS

CERTIFICATE OF PROOF

On the …… day of …… 20…… at ……. o'clock in the …… O'clock this instrument was proved before me by the Oath of the within-named …… …… to have duly executed by the within-named DONOR: -

……..
REGISTRAR OF LANDS

SCHEDULE

DESCRIPTION OF LAND

SITE PLAN

ANNEX 7

Air Quality Measurement

4.4.1 Sampling locations

The samples were collected from the following sampling points (see table below), and analysed for specified parameters. The sampling location were so chosen to determine the impact levels within the proposed project site and to reflect any interaction with neighbouring activities and/or emissions.

The Ambient Air Quality and Noise Monitoring Locations

Sampling site	**Latitude**	**Longitude**
Sakalu	10.68147	-2.05298
Kuroboi	10.58594	-1.86761
Jitong	10.9816	-2.11818
Dassima	10.6429	-2.23508
Kojopere	10.36487	-2.2294

4.4.2 Types of data collected and analytical methods employed for are quality assessment

The ambient air quality was monitored for concentrations of Respirable Dust (TSP, PM10 and PM2.5), Sulphur Dioxides (SO2), Nitrogen Dioxides (NO2), and Carbon Monoxide (CO) at designated sampling locations.

Particulate Matter

TSP and PM_{10} were collected for measurement by using a High-Volume Sampler. The active principle sampling mechanism was employed in which portable motor-driven SKC Dust Samplers were installed at each sampling site. The equipment was calibrated in the field prior to use. Background samples were collected for one day on pre-weighed glass fibre filters. These were re-weighed after the sampling in order to determine the weight difference. The flow rate of the sampler was set at 10Lmin-1 corresponding to the normal human breathing rate.
The individual dust samples were gravimetrically analysed using the formula given below.

$$TSP/PM10\ (\mu gm^{-3}) = (W2 - W1)/(Fr * T)$$

Where:

W1 = weight of filter paper before sampling
Fr = flow rate (10Lmin-1)
W2 = weight of filter paper after sampling
T = sampling duration in minutes

The Osiris, a Turnkey Instrument's direct reading airborne particulates monitor was used to measure the concentrations of the PM_{10} and $PM_{2.5}$ in the ambient air. The Osiris particulates monitor is time-integrated

and configured to measure the particulates mentioned above in real time and provides the time-weighted average values over the monitoring period- 24- hour averaging time. It works by using Turnkey's specially- developed nephelometer i.e., air samples are continuously drawn through the nephelometer, which analyses individual particles as they pass through a laser beam. The particles are then collected on the reference filter. The Osiris has achieved the Environment Agency's MCERTS certification, ensuring its accuracy in recording data.

Noxious Gases

Levels of sulphur dioxide, nitrogen dioxide and carbon monoxide in the ambient air at the designated sampling location was determined using the Aeroqual Series 500 gas monitor with sensor heads of the required noxious gases. It enables real time monitoring of the gas and provides the time-weighted average values over the monitoring period- 24- hour averaging time.

4.4.3 Types of data collected and analytical methods employed for noise level assessment

Noise Levels within the selected project locations were captured in-situ in decibels on the A scale, i.e. dB(A) using a portable Quest Integrated Sound Level Meter type 2900 with data logging system. Measurement of noise is often 'A-weighted' to consider the fact that some sound wavelengths are perceived as being particularly loud and not sensitive to the human ear. Thus, the A scale gives greater weight to the frequencies of sound to which the human ear is most sensitive.

The following statistical summaries were automatically retrieved from the meter and are as explained below and compared with the Standard value for areas where the dugout construction were ongoing

L_{EQ} Equivalent Sound Level representing the average integrated sound level accumulated during the sampling period;

L_{EQ} Equivalent Sound Level representing the average integrated sound level accumulated during the sampling period

L_{MAX} Maximum Sound Level obtained during the sampling period;

L_{MIN} Minimum Sound Level obtained during the sampling period;

L_{10} Nuisance noise level obtained during the sampling period

L_{50} Average noise level recorded during the sampling period; and

L_{90} Background noise level recorded during the sampling period.