



**MINISTRY OF FOOD AND AGRICULTURE**

**ENVIRONMENTAL AND SOCIAL IMPACT  
ASSESSMENT (ESIA)**

**FOR**

**SISSALA EAST MUNICIPALITY  
SUB-PROJECTS**

**SAVANNAH AGRICULTURE VALUE CHAIN  
DEVELOPMENT PROJECT (SADP)**

**FINAL REPORT**

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June 2022



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## ACRONYMS AND ABBREVIATIONS

|         |                                                                                 |
|---------|---------------------------------------------------------------------------------|
| 1D1F    | One District One Factory                                                        |
| AEZ     | Agro-Ecological Zones                                                           |
| AfDB    | African Development Bank                                                        |
| CBD     | Central Business District                                                       |
| CITES   | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| DCP     | Decommissioning and Site Closure Plan                                           |
| DEMC    | District Environmental Management Committees                                    |
| EA      | Environmental Assessment                                                        |
| EIS     | Environmental Impact Statements                                                 |
| EPA     | Environmental Protection Agency                                                 |
| ESIA    | Environmental Impact Assessment                                                 |
| ESMP    | Environmental and Social Management Plan                                        |
| FAREC   | Feed Africa Response to the Impact of COVID-19                                  |
| FASDEP  | Food and Agriculture Sector Development Policy                                  |
| FAW     | Fall Army Worm                                                                  |
| FBGs    | Farmer Based Groups                                                             |
| FBOs    | Farmer Based Organizations                                                      |
| FID     | Factories Inspectorate Division                                                 |
| GIDA    | Ghana Irrigation Development Authority                                          |
| GNFS    | Ghana National Fire Service                                                     |
| GRC     | Grievance Redress Committee                                                     |
| ICPM    | Integrated Crop and Pest Management                                             |
| MED     | Metro Education Directorate                                                     |
| METASIP | Medium Term Agriculture Sector Investment Plan                                  |
| MoFA    | Ministry of Food and Agriculture                                                |
| NADMO   | National Disaster Management Organization                                       |
| OSs     | Operational Safeguards                                                          |
| PAPs    | Project Affected Persons                                                        |
| PCR     | Project Completion/Technical Review                                             |
| PCU     | Project Coordinating Unit                                                       |
| PFJ     | Planting for Food and Jobs                                                      |
| PSC     | Project Steering Committee                                                      |
| RCC     | Regional Coordinating Council                                                   |
| RFJ     | Rearing for Food and Jobs                                                       |
| SADP    | Savannah Agriculture Value Chain Development Project                            |
| SAPIP   | Savannah Zone Agriculture Productivity Improvement Project                      |
| SDHMT   | Sub-district Health Management Team                                             |
| SIP     | Savannah Investment Programme                                                   |
| SPS     | Sanitary and Phytosanitary                                                      |
| TAAT-s  | Technologies for African Agricultural Transformation                            |
| SEDA    | Sissala East District Assembly                                                  |
| UNFCCC  | United Nations Framework Convention on Climate Change                           |
| WRC     | Water Resources Commission                                                      |

## NON-TECHNICAL EXECUTIVE SUMMARY

### 0.1 OVERVIEW OF THE PROJECT

The Savannah Agriculture Value Chain Development Project (SADP) is being implemented by the Government of Ghana through the Ministry of Food and Agriculture to serve as part of post COVID-19 reconstruction efforts aimed at addressing disruptions in food systems in Ghana. It builds on earlier successes under the Savannah Zone Agriculture Productivity Improvement Project (SAPIP) and Savannah Investment Programme (SIP) that have so far expanded the production of maize and soybean from 80 hectares in 2018 to 14,000 hectares in 2021. This program is expected to build on the achievements made and to further expand production of rice, soybean and maize by additional 8,000 hectares by 2026. The SADP project, is being implemented in nine (9) different MMDAs across Ghana.

### 0.2 Objectives

The overall goal of the project is to increase production of livestock (particularly poultry meat), contribute to industrialization, youth employment and food security.

#### 0.2.1 Specific Objectives

The project is expected to

- contribute to the Government's industrialization agenda, including One District One Factory (1D1F),
- support skills development and entrepreneurship for women and youth, and build resilient food systems in the savannah areas of northern and middle belts of Ghana.
- facilitate private sector investment in value chains associated with meat production, improved productivity and production of feedstock made up of rice, maize and soybean

### 0.3 Components and main activities

| No | Component Name         | Sub-Component and Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Production Development | <p><b><u>Sub-component 1.1 Commercial Production of Maize and Soybean under Conservation Agriculture</u></b></p> <ul style="list-style-type: none"><li>• Production and promotion of certified hybrid maize and improved soybean seeds, in collaboration with seed companies.</li><li>• Support to land development and mechanisation services.</li><li>• Training of producers, haulers, aggregators and marketers on sanitary and phytosanitary (SPS) issue relating to maize and soybeans</li><li>• Farmer mobilisation and awareness creation on conservation agriculture.</li><li>• Train project staff and farmers on Integrated Crop and Pest Management (ICPM), including biological control options for the management of Fall Army Worm (FAW) and aspergillus on Maize and Soybeans.</li><li>• Conduct surveillance and collect data on pests attacking the Maize and Soybeans in the project zones with specific reference to FAW.</li><li>• Support out-grower contractual arrangements</li><li>• Use of ICT for soil suitability assessment and GIS mapping of commercial farms</li><li>• Promotion of climate smart agriculture, environmental conservation best practices, including use of economic trees such as shea, dawadawa, mango, cashew etc.</li><li>• Community sensitization, Establishment of fire belts and enforcement of community fire by-laws to deal with the impact of bush fires.</li><li>• Promote the use of Nitrogen fixing inoculants to boost soybean yield</li></ul> |

| No | Component Name                               | Sub-Component and Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                              | <b><u>Sub-component 1.2 Promotion of Small and Medium Scale Commercial Poultry Production</u></b> <ul style="list-style-type: none"> <li>• Input support to small and medium scale commercial poultry farmers (poultry cages, day old chicks, feed stock, vaccines, veterinary drugs, etc)</li> <li>• Supply of local chicken to vulnerable households, especially women headed households</li> <li>• Support to poultry diseases surveillance, diagnosis and control</li> <li>• Training and capacity building on business development, animal husbandry and health</li> <li>• Support to hatchery expansion, including parent stock for broilers, guinea fowls and local chicken</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2  | Agribusiness and Value Chain Development     | <b><u>Sub-component 2.1 Value Addition and SME Development</u></b> <ul style="list-style-type: none"> <li>• Promotion of quality standards for rice, maize and soybean production, storage and processing</li> <li>• Support business development, including improvements in business processes of existing commercial farmers</li> <li>• Enhance access to market information (e.g. quantity, quality, timing and pricing)</li> <li>• Promote the development of allied services (packaging, new distribution networks for poultry products, transport services, new agro-input delivery systems, etc)</li> <li>• Support and training of poultry producers on ISO 9000 &amp; other necessary certification requirements on poultry to access premium market.</li> <li>• Support to feed millers to improve feed stock and expand processing capacity</li> <li>• Enhance investment facilitation and promotion to increase the number of commercial producers and processors in the Savannah regions</li> <li>• Support for cold chain development for chicken</li> </ul> <b><u>Sub-component 2.2 Youth/Women Empowerment and Nutrition</u></b> <ul style="list-style-type: none"> <li>• Promote other income generating activities for women and youth, including as shea, dawadawa, mango, cashew production and processing</li> <li>• Support women and youth on marketing and supply of poultry products to key institutions and programs including the school feeding program</li> <li>• Capacity building for women and youth in small-scale commercial poultry business management and entrepreneurship, including mentorship.</li> <li>• Promote the consumption of local poultry and eggs to improve household nutrition, and in particular maternal and child nutrition to prevent stunting</li> <li>• Promote the breed improvement of local poultry through cockerel distribution program</li> </ul> |
| 3  | Project Management and Institutional Support | <b><u>Sub-Component 3.1 Knowledge Management, Monitoring and Evaluation</u></b> <ul style="list-style-type: none"> <li>• Development of annual work plan and budget</li> <li>• Establishment of results-based management system for M&amp;E</li> <li>• Conduct Beneficiary Impact Assessment.</li> <li>• Conduct Project Mid-Term Review.</li> <li>• Conduct Project Completion/Technical Review (PCR).</li> <li>• Video and pictorial documentation of success stories</li> <li>• Undertake relevant studies, including socio-economic surveys, soil suitability surveys</li> <li>• Development and Implementation of Environmental and Social Management Plan (ESMP)</li> <li>• Enhance capacity to mobilize private sector investors in the maize-soybean-poultry industry</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|    |                                              | <b><u>Sub-component 3.2 Project Coordination.</u></b> <ul style="list-style-type: none"> <li>• Upgrade the project coordination unit with additional staff</li> <li>• Procure vehicles for PCU, office equipment and furniture as may be required.</li> <li>• Facilitate annual financial audits.</li> <li>• Facilitate procurement audit.</li> <li>• Facilitate Project Steering Committee (PSC) meetings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

#### 0.4 Project Activities in the Sissala East Municipality

The specific project activities to be implemented in the Sissala East Municipality at the preparatory, construction and operation phases of the project implementation are:

##### 0.4.1 Preparatory Phase

- Identification of beneficiary farmers for the production of maize, soybeans and rice

- Conduct of relevant studies, including socio-economic surveys
- Development and Implementation of Environmental and Social Management Plan (ESMP)
- Request for applications and screening of applicant farmers Assessment of soil suitability and GIS mapping of commercial farms using ICT.

#### **0.4.2 Construction Phase**

- Provision of support for land development and access to mechanisation services.
- Production and promotion of certified hybrid maize and improved soybean seeds, in collaboration with seed companies.
- Promotion of climate smart agriculture, environmental conservation best practices, including use of economic trees such as shea, dawadawa, mango, cashew etc.
- Training and capacity building on business development, animal husbandry and health
- Enhance capacity to mobilize private sector investors in the maize-soybean-poultry industry

#### **0.4.3 Operation Phase**

- Support out-grower contractual arrangements
- Conduct surveillance and collect data on pests attacking the Maize and Soybeans in the project zones with specific reference to FAW.
- Community sensitization, Establishment of fire belts and enforcement of community fire by-laws to deal with the impact of bush fires.
- Promote the use of Nitrogen fixing inoculants to boost soybean yield
- Promotion of quality standards for rice, maize and soybean production, storage and processing
- Support business development, including improvements in business processes of existing commercial farmers
- Enhance access to market information (e.g. quantity, quality, timing and pricing)
- Promote the development of allied services (packaging, new distribution networks for poultry products, transport services, new agro-input delivery systems, etc.)
- Support to feed millers to improve feed stock and expand processing capacity
- Enhance investment facilitation and promotion to increase the number of commercial producers and processors in the Savannah regions
- Promote other income generating activities for women and youth, including shea, dawadawa, mango, cashew production and processing
- Support women and youth on marketing and supply of poultry products to key institutions and programs including the school feeding program
- Capacity building for women and youth in small-scale commercial poultry business management and entrepreneurship, including mentorship.

### **0.5 Institutional and legal framework for implementation of the project**

#### **0.5.1 Roles and responsibilities of the project implementation entity (PIE)**

- 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 effectiveness of other litigation avoidance measures.
- Oversee sensitization and awareness programmes.
- Grievance Redress

### ***0.5.2 Implementing agencies and other stakeholders for the implementation of the ESMP***

#### Ministry of Food and Agriculture

- Project planning and design
- Payment of compensations to PAPs, if any
- Management of contract award
- Compliance monitoring
- Grievance redress

#### Environmental Protection Agency

- Issuing of environmental permit upon review and approval of ESIA
- Adhoc monitoring of the sub project to ensure compliance with conditions of the Environmental Permit.

#### Sissala East Municipal Assembly

- Adhoc monitoring of project during the construction phase
- Monitoring facilities during the operational phase of the project to ensure that it is working properly and help resolve operational phase challenges
- Grievance Redress

#### Project Consultant and Safeguards Specialist

- Ensure that project execution meets specified environmental, social, health and safety guidelines contained in the contract documents and ESMP
- Issue site instructions to Contractors to ensure environmental and social mitigation measures are implemented by contractors
- Grievance Redress

#### Works Contractors/Sub Contractors

- Contractors for the civil works will be responsible for construction and installations under the project according to project specifications and designs.
- Contractors are responsible for reinstatement of all damaged properties.
- Contractors are responsible for implementation of the construction phase mitigation measures provided in the ESMP
- Responsible for presentation of monthly monitoring report to the PCU
- Responsible for remedying defects committed during construction

#### Grievance Redress Committee

- To receive and find solutions to grievances

### ***0.5.3 Legislative and regulatory requirements for the implementation of the ESMP***

The relevant legal and institutional frameworks include:

#### Policies and Plans

- Ghana Shared Growth and Development Agenda, 2010;

- National Environmental Policy, 2012;
- National Land Policy, 1999;
- National Water Policy, June 2007;
- National Climate Change Policy, 2013;
- National Gender Policy, 2015;
- Riparian Buffer Zone Policy, 2014;
- National Irrigation Policy, June 2010;
- Food and Agriculture Sector Development Policy, FASDEPII (MOFA);
- National Environmental Action Plan/Policy, 1994; and
- National Employment Policy, 2012

#### National legal framework

- The Constitution of the Republic of Ghana, 1992;
- Ghana Investment Promotion Centre Act 1994, Act 478;
- Environmental Protection Agency Act 1994, Act 490;
- Environmental Assessment Regulations 1999, LI 1652
- Fees and Charges (Amendment) Instrument, 2019 (LI 2386);
- Water Resources Commission Act 1996, Act 522;
- The Water Use Regulations 2001, LI 1692;
- Ghana Meteorological Agency Act 2004, Act 687

#### Agriculture sector legislation and related requirements

- The Irrigation Development Authority Regulations, 1987 (L.I. 1350)
- Irrigation Development Authority (Irrigation Water Users Association) regulations, 2016 (LI 2230);
- Plants and Fertilizer Act 2010 (Act 803)

#### Local governance, planning and other institutional requirements

- Local Governance Act, 2016 (Act 936);
- National Building Regulations, 1996 (LI 1630);
- The State Lands Act, 1962 (Act 125);
- Lands Commission (LC) Act 2008, Act 767;
- Land Use and Spatial Planning Act, 2016 (Act 925)

#### Labour, Health, Safety, Security and Social Protection

- Labour Act, 2003 (Act 651);
- Occupational Safety and Health Policy of Ghana (Draft, 2004);
- Workmen's Compensation Law, 1987 (PNDCL 187);
- National Workplace HIV/AIDS Policy

#### Environmental regulations

- Ghana Standards for Drinking Water (GS 175:2017 5<sup>th</sup>);
- Ghana Standard for Environmental Protection - Requirements for Effluent Discharge (GS1212, 2019);

- 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);
- Factories, Offices and Shops Act, 1970 (Act 328);
- Water Resources Commission (WRC) Act 1996, Act 522;
- Ghana National Fire Service Act, 1997 (Act 537);
- Fire Precaution (Premises) Regulations, 2003 (LI1724).

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

### **0.6.1 Project location in Sissala East Municipality**

The Sissala East Municipality is located in the Upper West Region of Ghana, between the latitudes of 10.000 N and 11.000 N and longitude 1.300 W. The municipality is bounded on the east by the Kassena-Nankana and Builsa Districts, to the north by Burkina Faso, to the west by Sissala West District, to the South East by West Mamprusi District and to the South West by Wa East and Daffiama-Bussie-Issa Districts. The municipality has a total land area of 4,990 sq.km.

#### **0.6.2 Direct influence area**

The immediate geographical area of influence of the project will be beneficiary communities, which have been identified based on the availability of vast land for commercial farming. Considering that the environmental and social characteristics are largely homogeneous, broader reference is made to information on the Sissala East Municipality, where the project communities are located.

#### **0.6.3 Indirect influence area: Sissala East Municipality**

The entire Sissala East Municipality is largely the indirect influence area as all the beneficiary communities fall administratively under Sissala East Municipal Assembly.

## **0.7 Environmental baseline conditions and major environmental stakes/challenges**

### **0.7.1 Physical Environment**

The topography of the Sissala East Municipality can be characterized as gently undulating with altitudes of between 330 and 365m in the northern part descending to 220m and 290m in the Valley of the Sissili River. The municipality is mainly drained by the Sissili River and its tributaries flowing in the south-eastern direction to join the White Volta. This is coupled with several tributaries and other unnamed streams which are perennial in nature. Though they have potential for supporting the development of dams and dugouts, they are left bare. The flow of the Sissili River itself reduces to intermittent pools in the dry season. The constant drying of these rivers necessitate the drilling of boreholes to supplement the seasonal shortage of water.

Within 50m and 6km of the potential project communities, water sources include perennial streams and dugouts such as Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfuo, Fuonaa, Kong dugout, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembelle dugout, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, and Nyirebere.

The area has fresh granitic and bromine rocks which weather fast as a result of low rainfall, high evaporation, and sparse vegetative cover to form soils of lesser depths rich in minerals for potential farming. The bromine and granitic geological formations are characterized by meta-sediments and meta-volcanic rock formations. The bromine formation has a 65% yielding underground water, while the granite has a 55% chance of yielding water. This type of geology provides the potential for underground water development.

The land has a variety of soils including Savannah Ochrosols, Tropical brown earth, and Terrace or Alluvial soils which support plant growth to various degrees. These soils are better suited for the cultivation of cereals and root tuber crops including millet, maize, sorghum, yam, and cash crop like cotton.

The climatic condition of the municipality is tropical continental, similar to that of the northern portions of the country. The area's typical temperature fluctuates from a minimum of 23°C at night to a maximum of 42°C during the day, which is ideal for plant development. The average monthly temperature is between 21°C and 32°C. Before the rainy season in May, the highest monthly maximum temperature reaches 40°C, with the lowest minimum temperature falling to around 12°C in December when the Harmattan winds from the Sahara dry up the vegetation.

### **0.7.2 Biological Environment**

Sissala East Municipality lies within the Guinea Savannah vegetation belt of the country. The vegetation consists of grasses with scattered fire-resistant trees like sheanut (*Vitellaria paradoxa*), baobab (*Adansonia digitata*), dawadawa (*Parkia biglobosa*) and acacia.

The shorter shrubs and grasses provide fodder for livestock. This has resulted in high influx of Fulani into the district. The Shea nut tree is one of the great economic assets of the district. The forest reserves cover a total area of about 267 sq. km and encourage a rich stock of mammalian wildlife. This includes the following: Primates (Baboons and monkeys), Rodents (grasscutter, rabbits, and various species of rats and mice), Carnivora (Civets), Edentates (Aardvark/ant-deer), Elephants (Savannah elephants/*Loxodonta* African), and Artiodactyls (wild pigs, dwarf buffalo, roan antelope).

### **0.7.3 Social baseline conditions and major social stakes/challenges**

The administrative structure of the Sissala East Municipality is made up of the Municipal Assembly and its secretariat, departments of the Assembly, 1 Urban Council (Tumu) and 4 zonal councils (Bujan, Wellembelle, Sakai and Nabulo). The Municipal Assembly is made up of 28 Assembly men and 3 Assembly women. It is the highest decision-making body and is responsible for the overall development of the district.

The assembly also has a Presiding Member who presides over meetings of the Assembly and is in charge of complaints and public relations. The assembly has a 9-member Executive Committee which performs/exercises its executive and coordinating functions. To facilitate the discharge of these important responsibilities, the Municipal Development Planning Coordinating Unit (MPCU) was put in place and made operational. In the Sissala East Municipality and at the apex of the traditional setup are four paramountcy's namely the Tumu, Banu, Bawiesible, and the Wellembele Paramountcies. There is a close collaboration between these traditional setups and the formal system in terms of policy making, conflict resolution and the implementation of development programmes and projects. The traditional institutions are key stakeholders in development in the district as they are in charge of the allocation of land for development projects and equally take part in the monitoring process.

The district population, according to the 2021 Population and Housing Census, is 80,619 made up of 39,868 (49.5%) males and 40,751 (50.5%) females. The population density is 16.2 persons per sqkm with a total of 19,262 households and an average household size of 4 persons per household which is lower than the regional average of 4.6.

According to the 2021 Population and Housing Census, the district is predominantly rural with 76.7% rural population and 23.3% living in urban areas. The municipality is mainly agrarian with the majority (69%) of the people engaged in the cultivation of cash and staple food crops. Recently most farmers have gone into industrial tree plantations such as cashew and mango as well as cotton cultivation. Commerce is one of the major sources of employment for the local economy employing 15% of the population. The commercial activities are predominantly buying and selling of agricultural produce, consumer goods and second-hand items. Livestock rearing involving cattle, sheep, goats and rural poultry is another main occupation engaged by farmers.

The municipality has about 258.8 km of trunk roads, with about 226.14 km of the road being feeder roads. Accessibility becomes difficult, especially during rainy season as a result of the unpaved nature of some of the roads. The municipality has a major problem of poor road infrastructure. This affects the socio-economic development of most communities such as Gwosi, Santijan and Bawiesibelle which are almost cut off from the rest of the municipality during the peak rainy season.

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Land ownership follows a patrilineal system with regards to land inheritance. The type of land tenure system practised in the municipality is where the allodial title to the land is vested in the Tindana or earth priest. The tindana is in charge of the customary land management of the municipality. They enforce the rules binding land acquisition, allocate land rights and arbitrate conflicts arising therein. Though traditionally, tindana is the sole authority responsible for land administration, the practical management of land is done by family heads. The family heads ensure that every family member has access to land and that disputes are settled and these are usually the most senior male members of the family. However, a person or a group of people can buy land for construction, farming and other purposes from chiefs and family leaders.

## **0.8 Major and moderate impacts and Mitigation**

### **0.8.1 Preparatory Phase Negative Impacts**

#### ***Land related disputes***

The project communities are largely rural communities with vast land hence land take is not expected to generate major disputes. However, some farmers or individuals in order to be considered for project support may hurriedly acquire lands without following due process. This could result in ownership being contested especially if there is an ongoing land dispute resulting in a protracted dispute that could have some security implications.

Ownership of land should be made a requirement for qualification as a project beneficiary and evidence of ownership should be produced and documented. For lands without deeds, family or community consent should be obtained and documented before project is implemented.

#### ***Impact on livelihoods***

Rearing of animals is a key economic activity in the project communities and animals such as cattle, sheep, and goat graze on surrounding vegetated lands. However, project activities such as land clearing and levelling could restrict locals access to lands that were otherwise used as pasture areas. Considering that there are vast adjoining uncultivated lands, herdsmen can still lead their animals to graze at other areas.

Project activities such as land clearing could destroy some economic trees like dawadawa and shea. Women are known to pick fruits of these wild trees and sell as a means of livelihood. Since these trees grow in the wild, picking can be done in other areas.

The impact is local and the displacement will be temporary as alternative sites exist. The impact is therefore considered moderately significant.

Identification and proposal of alternative pasture areas to locals who otherwise used the project site as pasture area will help reduce the impact of restricted access. Furthermore, locals and herdsmen can be provided with some financial and technical support to acquire a sustainable source of feed for their livestock. Herdsmen can practice the cut and carry system i.e. grass is cut and carried to feed animals to avoid any potential conflicts over access. Women earning a living out of shea and dawadawa picking should be considered for employment both during construction and operation phases of the project. It is recommended that the capacity of women is built so they can own and run small and medium scale enterprises that will provide services to the project and the community at large. Also, preparation of a detailed RAP will be required to fully assess the impact on livelihood.

#### ***Destruction of vegetation and displacement of wildlife***

Site clearing for soil suitability assessments and land preparation will lead to the destruction of some common vegetation, mostly shrubs and grasses, and a few trees. As required by the project, beneficiary farmers must own vast lands (>100 ha) and clearing of such vast areas could adversely affect vegetation including economic trees like shea and dawadawa. Habitats of common soil organisms such as dung beetle and earthworms will also be destroyed. However, the area, especially

in the dry season, has very sparse vegetation and little fauna hence impact on vegetation will only be moderate.

To mitigate the impact of vegetation loss from clearing, only area required for project be cleared. Vegetation clearing should be carried out in the dry season when very few plants will be affected. Economic trees such as dawadawa and shea should be avoided during clearing, if possible. Stray animals that are observed at or around project sites should be given safe passage to nearby bush and not killed. Hunting and or killing of wildlife/animals in bushes around project site by construction/other workers should be prohibited and made punishable.

### ***Flooding***

The project area experiences some flood events in the rainy season after torrential downpours affecting mainly low-lying communities. Water bodies in the area including the Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfu, Fuonaa streams, Kong, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembele dugouts, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River Lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, Nyirebere, are less than 0.1km to 6.0km away from project communities could overflow their banks and flood these communities. Flood events could lead to disruption of livelihood activities, loss of property and even lives. Also, supply chains could be disrupted by loss of infrastructure such as bridges and roads in flood events. This impact is regional, severe yet temporary hence considered moderate.

Flood events have the potential of disrupting the implementation of the project in the municipality unless farmers are discouraged from siting their farms within or close to riverbeds. Other mitigation measures include collaboration with spatial planning and disaster management agencies, using disaster maps and systems to stay away from flood-prone areas. Infrastructure for agricultural establishments should be constructed preferably on higher grounds or an artificial elevation. Workers and the community must be educated on early warning signs of flood and insurance cover provided for equipment and personnel.

## ***0.8.2 Construction and Operation Phase Negative Impacts***

### ***Soil degradation***

#### **Construction**

Levelling, as part of land preparation, and excavation for foundation of structures such as sheds and warehouses could lead to soil erosion and creation of gullies through runoff especially in the rainy season. Also, oil spillages from the maintenance of construction equipment and vehicles could contaminate soils and affect flora and soil fauna including dung beetles and earthworms. As there are vast adjoining lands, excavated spoils from land levelling could be pushed into other tracts of land creating unsightly scenes. The impact is largely localized, persistent and of average severity hence it is considered moderate.

However, with measures such as reinstatement of excavated areas, maintenance of vehicles, machines and fuel refilling at a designated area, contamination of soil can be avoided. Fuel storage and refilling sites should be kept away from drains and important water bodies. All spoils shall be

disposed of as desired and the site shall be fully cleaned before handing over. These measures are expected to minimize the impact on soil.

#### Operation

Leaving farmlands bare especially after harvesting could expose the soil to wind erosion from the strong winds in the dry season. Leaked or spilled oils from maintenance/operation of equipment and vehicles could contaminate soil and adversely affect soil fauna. Also, contaminated soil could be washed into nearby waterbodies via runoff. However, this impact is localized and of average severity hence considered moderate in significance.

Farmlands should be kept always vegetated to prevent wind erosion from strong winds. Drains must be created to properly channel runoff. An area should be designated for maintenance of vehicles and spill kits provided for accidental spillages.

#### ***Air Pollution***

##### Construction

Land preparation and transport of materials on untarred roads will lead to emission of particulate matter i.e. dust and fumes and adversely affect air quality, especially in the dry season. The impact on air quality is likely to be considerable especially when particulate matter is carried over some distance by winds like the harmattan winds that characterize the climate of the project area. However, any possible impacts will be temporary hence the significance will be moderate.

Construction vehicles and equipment should be maintained regularly to reduce their emissions and engine idling should be discouraged. Water should be sprinkled on cleared areas and all areas that have loose soil and the potential for dust pollution to suppress dust.

##### Operation

At the operation stage, fumes and dust generated by equipment and vehicles could reduce the quality of air in beneficiary, neighbouring communities and communities along haulage routes. Sensitive receptors such as persons with allergies and upper respiratory tract diseases could experience aggravation of their condition. This impact is temporary but could be regional in extent and considered moderate.

Mitigation measures include regular maintenance of equipment and vehicles, discouraging engine idling and institution of speed limits for drivers.

#### ***Water Pollution***

##### Construction

Disposal of domestic waste from construction workers and food vendors and deposition of sediment, waste oil, fertilizer and pesticides via runoff into nearby water bodies will reduce the quality of water and could also smother some fishes and benthic organisms. Waterbodies and water sources that serve

the area, such as Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfuo, Fuonaa streams, Kong, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembelle dugouts, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River Lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, Nyirebere, are less than 0.1km to 6.0km away from project communities. These waterbodies could be the direct recipient or indirect recipient of pollutants from farms. The extent of the impact is largely local as most of the water bodies are dugouts that do not flow into other water bodies. Pollutants could however, percolate into the ground and contaminate groundwater. The impact severity is average, it is localized and temporary hence considered moderate in significance.

A waste management plan should be developed by the contractor to segregate, collect and dispose of waste to prevent indiscriminate disposal of waste. Maintenance of equipment and vehicle should be done at designated areas with spill kits and drip trays provided to manage spillages.

#### Operation

Domestic wastes, poultry waste, workforce sewage/effluent, as well as runoff from cultivated land (containing fertilizers, pesticides and herbicides etc.) could pollute surface water. Nutrient loading from fertilizers could lead to eutrophication and reduce the water quality making it unsuitable for use.

Wastes should be segregated in designated waste bins and collected regularly by a licensed waste collector. Disposal of wastes near water bodies should be avoided.

### **Noise and Vibration**

#### Construction

Operation of construction equipment, movement of haulage vehicles and tooting of horns. Construction activities are anticipated to produce noise levels in the range of 80 - 95 dB (A). The construction equipment will have high noise levels, which can affect the personnel operating the machines as well as the residents within the project community or nearby communities.

Use of proper Personal Protective Equipment (PPE) such as earmuffs will mitigate any adverse impact of the noise generated by such equipment on workers. Equipment and vehicles will be maintained regularly to reduce noise levels. Also, construction activities will not be carried out during the night to reduce the impact of noise on residents and other sensitive receptors.

#### Operation

Noise and vibration from operation of processing equipment, equipment maintenance, movement of haulage vehicles, tooting of horns and noise from the poultry birds could be a nuisance to persons within the project community or nearby communities

### **Waste generation and inefficient management**

#### Construction

Clearance of vegetation and levelling of land at project site will generate vegetative waste and excavated spoil. Other wastes such as construction debris, pieces of steel/metal, packaging materials, plastic pieces, human waste etc. if not disposed properly could clog drains, produce foul smell and

facilitate the outbreak of sanitary related diseases such as cholera. The impact is local, temporary and of a high intensity hence considered major in significance.

A waste management plan should be developed by the contractor to segregate, collect and dispose of waste to prevent indiscriminate disposal of waste. Segregation of waste such as domestic i.e. food packaging and hazardous waste i.e. containers of pesticides and herbicides should be practiced and waste collected by licensed waste collectors. Maintenance of equipment and vehicle should be done at designated areas with spill kits and drip trays provided to manage spillages.

### Operation

Improper disposal of vegetative waste from weeding, harvests, domestic waste from workers and effluent from installations could create unsightly scenes and aid in the production of vermin. Also, it could serve as breeding grounds for disease causing vectors like mosquitoes, houseflies etc.

Provide bins and skips for waste collection and ensure it is disposed of regularly. Educate workers, vendors and visitors on the importance of proper waste management.

### ***Workplace incidents/accidents***

Workers could be exposed to workplace and traffic-related accidents/incidents as well as animal/insect threat/bites during land preparation, civil works and transportation of materials or persons.

Injuries resulting from falling from heights and falling objects, as well as from the misuse of equipment and tools, cuts from stepping on sharp objects such as nails and other metal off-cuts and injuries resulting from clashes between vehicles and the workers as they both operate within the same space are likely to occur during the implementation of the project.

This impact is considered significant since it affects human lives and would therefore require adequate mitigation measures. Occupational health and safety risks are rated highly sensitive because they lead to mortality and long-term morbidity involving site workers. It is however, localised small scale and short term, implying its magnitude is low. In terms of significance Occupational Health and Safety risks considered a moderately significant risk, though it has a low magnitude of impact because of its high sensitivity.

To mitigate this impact, the contractor should prepare an Occupational, Health and Safety plan and ensure compliance onsite.

### ***Poor labour working conditions***

Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions such as lack of welfare facilities, restriction of freedom of association, speech, and absence of an effective grievance redress mechanism. If the necessary actions are not put in place to guarantee workers right and stipulate conditions of service to ensure that proper working conditions are implemented on the project. Poor Labour working conditions is rated moderate scale, localised and short term, hence low magnitude of impact. It is also highly

sensitive since subjecting employees to poor conditions of service and working conditions are against Ghana's labour laws such as Labour Act 2003 (Act 651). Hence this impact is moderately significant.

Provide all workers with signed contracts that are consistent with national labour laws as well as welfare facilities such as potable drinking water, shades, restrooms etc. Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.

### ***Traffic management***

Transport of materials and equipment to and from the project site through communities and townships raises traffic/public safety concerns. Broken-down, inappropriately parked or slow-moving haulage/construction trucks could lead to road accidents and traffic congestion especially on busy roads. At night, due to poor or low visibility, there is a high probability of road accidents. Though temporary, this is considered major as it is regional in extent and of high severity because it could result in fatality.

To avoid or reduce road traffic accidents and incidents, only qualified drivers should be used, vehicles must be maintained regularly to ensure that they are in good working condition, use of signs as appropriate and driving at night should be discouraged. Also, speed limits must be set to ensure safe driving e.g. 20km/h onsite, 40km/h on approaching communities along haulage routes and a maximum speed of 100km/h on highways.

### ***Fire outbreak***

Fire outbreaks from negligence of workers or the public burning refuse, game hunting and workers not properly extinguishing stubs of cigarette. Fire outbreaks may also emanate from power surges or the use of sub-standard electrical cables and sockets. These fires could spread causing injuries or death to persons and destruction of property. Community health and safety risks on the site are rated regional, short term and small scale; low magnitude but highly sensitive because they lead to mortality and long-term morbidity. Hence such impacts are moderately significant.

### ***Gender based violence***

Workers with relatively high incomes will be working on the various sites. The site workers can lure girls, hawkers, food vendors, other petty traders who supply them food and other services and defile or rape them. Workers may also abuse themselves and/or supervisors. They can also do same to their wives, partners, children, hawkers, petty traders and food vendors physically or verbally over misunderstanding of prices of goods and services and other issues.

Sexual favours could be demanded in exchange for jobs, promotion or other work-related benefits. Women may also be discriminated against, denied employment opportunities and /or their services may be undervalued on the basis of cultural norms. The incidence of GBV is short-term and small-scale hence considered moderate.

To prevent incidences of GBV, legal processes set out by national law must be followed. Policies on SEA/SH should be developed and implemented. Worker contracts should have clauses prohibiting rape, defilement, sexual harassment, child/forced labour and other GBV. An employment quota should be allocated to women. Contact numbers of representative on the Grievance Redress

Committee and GBV Service Providers should be posted around the project site and within the immediate project zone.

### ***Public health issues***

Dust borne communicable diseases, respiratory infections and minor throat and eye irritations are expected, especially during the dry season because of the emission of vehicular pollutants and dust (carbon monoxide and particulates). The presence of workers and related increase in disposable cash makes the transmission of STDs a possibility. During project execution (civil works), large numbers of workers will be required to assemble together in meetings, and even at work sites; varied number of workforces including suppliers of material and services are also expected to come in from various places which may be COVID-19 hot spots; and interaction of workers with the project host community. The potential for the spread of any infectious disease like COVID-19 is high.

Improper waste management may create conditions for the growth of vectors of diseases such as cholera and dysentery. The outbreak of these diseases would have far-reaching negative implications for the health of residents and put pressure on the limited health facilities in the area.

An awareness and sensitization campaign together with responsible government agencies like National AIDS Commission should ensure that the people in the project area (workers and locals) are made aware of the issues and provided with condoms. Conduct daily temperature screening of workers and visitors for COVID-19.

### ***Snake bite risks***

Women and any other persons collecting dawadawa and shea fruits are likely to be exposed to snake bites as the project region i.e. Upper West region is known to have high cases of snake bites. According to the African Research Network for Neglected Tropical Disease, the Upper West had the highest average number of snakebites i.e. 1,425 cases between 2015 and 2019 and records 114 bites per 100,000 persons. Impacts of this risk include reduction in productivity of victims who skip work to seek treatment, prolonged illness or premature death due to unavailability or high cost of anti-snake venom (USD 100 per vial). Considering that victims require 3 to 8 vials, health facilities may not have adequate supplies, and victims may resort either to traditional medicine (that may be ineffective) or they will not seek treatment at all. This impact is localised, temporary and average in intensity as it can lead to hospitalization and even death. It is therefore considered moderate in significance.

Pickers should be provided with picker tools and PPE such as wellington boots either for free or at a subsidised price to prevent them from picking with their bare hands and reduce their exposure to bites. Project to identify a local health facility with regular supply and adequate stock of vials and designate as a referral facility for snake bites. Locals should be sensitized on the importance of avoiding snakes and seeking early medical help after snake bites.

### ***Security concerns***

Civil works can be associated with theft and pilfering of construction materials normally from the general public and site workers. Site workers can also steal from private properties within the

immediate project zone. Other crimes include illicit sexual affairs, child labour and drunk driving, which are criminal under the laws of Ghana.

There may also be confrontations arising out of accidents and destruction of property by workforce, equipment or vehicles. This impact is localized, severe but temporary hence considered moderate.

Workers and local community should be sensitized on cultural tolerance and grievance mechanisms to prevent confrontations. Workers should be made to sign and adhere to a code of conduct which prohibits vices.

### **Cumulative Negative Impacts of the Project**

In the medium to long term, the project implementation is likely to have some cumulative impacts including

- Surface water pollution as a result of runoff carrying waste including refuse, sewage, remnant pesticides/weedicides/fertilizers, poultry waste, waste oils into nearby water bodies
- Contamination of groundwater from mismanagement of boreholes and wells for irrigation and other uses
- Waste generation from multiple sources, and multiple waste and dumping sites from uncoordinated waste management.

Mitigation measures for these impacts include careful design, implementation of the ESMP, and ensuring compliance through monitoring to confirm that activities and their outputs meet permissible limits (e.g. air emissions, chemical use, effluent treatment) under national law and international best practice.

## **0.9 Public Consultations**

### **0.9.1 Stakeholders consulted**

Institutions/stakeholders identified and consulted to work together to ensure sound project implementation and environmental protection are Ministry of Food and Agriculture, Ministry of Lands, PCU, EPA, Fire Service, Sissala East Municipal Assembly, Commercial farmers, Input Suppliers, Traditional Authorities and Focus Groups (including women and youth) within the project communities. Dates and locations of consultations are presented in the table below.

| Group of stakeholders         | Stakeholders                                            | Date of consultation | Location of consultation | Total number of persons met | Total women met |
|-------------------------------|---------------------------------------------------------|----------------------|--------------------------|-----------------------------|-----------------|
| Project Proponent/Beneficiary | Ministry of Food and Agriculture                        | 8/12/2021            | Sissala East             | 2                           | 0               |
|                               | Project Coordinating Unit                               | 18/11/2021           | Tamale                   | 2                           | 0               |
| Regulatory Institution        | Environmental Protection Agency                         | 25/11/2021           | Upper West Region        | 2                           | 0               |
| Other Government Institutions | Fire Service, Sissala East                              | 22/11/2021           | Sissala East             | 2                           | 0               |
|                               | Rural Enterprise Project, Sissala East Municipal        | 14/12/2021           | Sissala East             | 1                           | 0               |
|                               | Municipal Assembly, Sissala East                        | 14/12/2021           | Sissala East             | 2                           | 0               |
|                               | National Disaster Management Organization, Sissala East | 1/12/2021            | Sissala East             | 1                           | 0               |
| Other stakeholders            | Commercial Farmer                                       | 21/12/2021           | Tumu                     | 1                           | 0               |
|                               | Commercial Farmer                                       | 20/12/2021           | Tumu                     |                             |                 |
|                               | FBO                                                     | 19/12/2021           | Kong                     | 3                           | 1               |
|                               | Supplier                                                | 17/12/2021           | Tumu                     | 1                           |                 |
|                               | Farmers                                                 | 16/12/2021           | Taffiasi                 | 19                          | 6               |
|                               |                                                         | 18/12/2021           | Kong                     | 18                          | 6               |
|                               |                                                         | 7/12/2021            | Navariwie                | 10                          | 3               |
|                               |                                                         | 17/12/2021           | Sakalu                   | 13                          | 6               |
|                               |                                                         | 13/12/2021           | Chinchang                | 14                          | 6               |
|                               | NGO                                                     | 21/12/2021           | Tumu                     | 2                           | 0               |
|                               | Traditional Authority                                   | 20/12/2021           | Taffiasi                 | 5                           | 0               |
|                               |                                                         | 19/12/2021           | Kong                     | 6                           | 0               |
|                               |                                                         | 7/12/2021            | Navariwie                | 2                           | 0               |
|                               |                                                         | 17/12/2021           | Sakalu                   | 2                           |                 |
|                               |                                                         | 14/12/2021           | Chinchang                | 2                           |                 |
|                               | Women's Group                                           | 16/12/2021           | Taffiasi                 | 6                           | 6               |
|                               |                                                         | 16/12/2021           | Kong                     | 6                           | 6               |
|                               |                                                         | 7/12/2021            | Navariwie                | 3                           | 3               |
|                               |                                                         | 17/12/2021           | Sakalu                   | 6                           | 6               |
|                               |                                                         | 13/12/2021           | Chinchang                | 6                           | 6               |
|                               | Youth Group                                             | 16/12/2021           | Taffiasi                 | 7                           | 0               |
|                               |                                                         | 16/12/2021           | Kong                     | 5                           | 0               |

|  |  |            |           |   |   |
|--|--|------------|-----------|---|---|
|  |  | 7/12/2021  | Navariwie | 4 | 0 |
|  |  | 17/12/2021 | Sakalu    | 4 | 0 |
|  |  | 13/12/2021 | Chinchang | 5 |   |

### **0.9.2 Opinion of stakeholders about the project**

All stakeholders consulted were enthused about the project and indicated their readiness to lend their support for the successful implementation of the project. Most communities were however, not aware of the project and advised that further engagement be conducted to sensitize the beneficiary and surrounding communities.

### **0.9.3 Concerns raised by stakeholders consulted and proposed solutions**

The stakeholders engaged are in support of the project and are committed to ensuring smooth implementation of the project. Some of their major issues however include:

- **Environmental issues and natural disasters** – Bushfire management should be prioritized and training must be provided farmers in that regard. Fire belts should be placed around various farms to prevent them from ravaging fires. Proper training on handling, disposal and application of agrochemicals should be given to farmers to preserve the fertility of the soil and prevent pollution of water bodies. Poultry farms should be properly sited and poultry waste managed well to prevent odour nuisance to nearby settlements. Various disaster volunteer groups should be set up in the various beneficiary towns, these volunteers will be trained in various disaster management practises. Project should put in place afforestation plans to replace all the trees that will be cut down.
- **Land acquisition** – Litigation free lands should be considered first for the implementation of the project in order to prevent any future disputes over the ownership of the used land. In cases where any agreements are made with land owners, there should be written contracts signed to make the agreements binding.
- **Provision of farm inputs and machinery** – Farm inputs (seeds and fertilizers) are often scarce in various communities so it will be helpful if these inputs are provided for farmers. Farm machinery are expensive to acquire and the expectation is that such mechanised tools will be provided at subsidised rates to help enhance the work of farmers.
- **Confrontations and security concerns** – Commercial farmers have had altercations with cattle herdsman in the past due to destruction of farms hence ways of peaceful co-existence must be found. The project has to engage the herdsman as well as the community leaders.
- **Project implementation and monitoring** – Farmers should be sensitized on the project to enable them to fully participate in the project. Community members should be adequately engaged and informed of project as some have no idea of the project. Assembly officers and the beneficiary community should be well sensitized on the project to ensure smooth implementation
- **Socio-economic issues** – The main sources of livelihood in the community are farming, animal rearing, and sheanut picking and cutting of shea trees as part of project implementation could deprive some locals especially women of their livelihood.
- **Financial support** – The project should assist in providing financial support to beneficiaries. Most people especially women depend on Village Savings and Loans Associations (VSLA)

- **Community leadership and governance** – The decision makers in the community include the chief, landlords and the unit committee. The assemblyman represents the community in government and the community is satisfied with their representative, women are included during decision making through the magajia.
- **Vulnerable groups** – There are some women-headed households who have no livelihood support. There are vulnerable people who may be poor or have limited access to land. There are disabled persons in the community. Some households require support for survival especially just before the farming season around June.
- **Community challenges** – Erratic rainfall pattern, high cost of farm inputs, pest outbreak, lack of means of transportation/poor road network and unavailable market for farm produce are some challenges communities face. The project should include provision of dams for dry season farming, provision of affordable farm inputs, tractor services and improvements in education and healthcare.

The project will obviously benefit the local community through job creation, growth of businesses especially SMEs and government through increased revenue from taxes, food security, import substitution etc. Stakeholders are therefore urged to ensure that the outlined benefits accrue to the beneficiaries which includes the local community and government.

## 0.10 Environmental and Social Management Plan

### Environmental and Social Management Plan Matrix

| Impact                                                         | Project Phase | Source                                                             | Mitigation Hierarchy                                               | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Responsible Party | Monitoring                                             | Cost (USD) |
|----------------------------------------------------------------|---------------|--------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Preparatory Phase</b>                                       |               |                                                                    |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                                                        |            |
| <b>Restricted access to pasture and loss of economic trees</b> | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Repair or remedy</li> </ul> | <ul style="list-style-type: none"> <li>Identify and propose alternative pasture areas to locals who otherwise used the project site as pasture area.</li> <li>Provide locals with some financial and technical support to acquire a sustainable source of feed for their livestock.</li> <li>Encourage locals to practice the cut and carry system</li> <li>Consider employing local women as part of project implementation</li> <li>Build capacity of women to own and run businesses that will provide services to the project.</li> <li>Prepare a RAP to assess impact on livelihood</li> </ul> | PCU               | Environmental and Social Safeguards Specialists of PCU | 5,000      |
| <b>Destruction of vegetation and displacement of wildlife</b>  | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Offset</li> </ul>           | <ul style="list-style-type: none"> <li>Clear only area required for the project</li> <li>Reinstate excavated areas immediately after works to prevent excavated spoil from being transported by runoff into nearby water bodies</li> <li>Stray animals that are observed at or around project sites should be given safe passage to nearby bush and not killed.</li> <li>Hunting and or killing of wildlife/animals in bushes around project site by construction/other workers should be prohibited and made punishable.</li> </ul>                                                                | Works contractor  | Environmental Safeguards Specialist of PCU             | 5,000      |
| <b>Flooding</b>                                                | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Avoid</li> </ul>            | <ul style="list-style-type: none"> <li>Educate workers and community on early warning signs of flood</li> <li>Discourage the siting of farms within or close to river beds</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               | PCU               | Environmental and Social Safeguards Specialists of PCU | 5,000      |

| Impact                              | Project Phase | Source                                                                             | Mitigation Hierarchy                                                          | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Responsible Party | Monitoring                                 | Cost (USD) |
|-------------------------------------|---------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|------------|
|                                     |               |                                                                                    |                                                                               | <ul style="list-style-type: none"> <li>• Collaborate with spatial planning and disaster management agencies, using disaster maps and systems, to stay away from flood-prone areas</li> <li>• Infrastructure for agricultural establishments should be constructed preferably on high grounds</li> <li>• Provide insurance cover for equipment and personnel</li> </ul>                                                                                                                                                                                |                   |                                            |            |
| <b>Construction Phase</b>           |               |                                                                                    |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                                            |            |
| <b>Soil erosion</b>                 | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul>                   | <ul style="list-style-type: none"> <li>• Repair or remedy</li> </ul>          | <ul style="list-style-type: none"> <li>• Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>• All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                                                                                                                                                              | Works contractor  | Environmental Safeguards Specialist of PCU | 2,000      |
| <b>Air Pollution</b>                | Construction  | <ul style="list-style-type: none"> <li>• Project site and haulage route</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>• Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>• Suppress dust by watering dusty construction areas.</li> <li>• Ensure the use of nose mask in dusty environment.</li> <li>• Service vehicles and equipment regularly</li> </ul>                                                                                  | Works contractor  | Environmental Safeguards Specialist of PCU | 5,000      |
| <b>Water Pollution</b>              | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul>                   | <ul style="list-style-type: none"> <li>• Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>• Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> <li>• Manage leaked oil by placing trays under trucks to collect leaked oil.</li> <li>• Ensure proper waste management</li> </ul>                                                                                                                                                                                                                                     | Works contractor  | Environmental Safeguards Specialist of PCU | 15,000     |
| <b>Noise and vibration nuisance</b> | Construction  | <ul style="list-style-type: none"> <li>• Equipment and vehicles on site</li> </ul> | <ul style="list-style-type: none"> <li>• Abate on site</li> </ul>             | <ul style="list-style-type: none"> <li>• Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>• A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> <li>• Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> </ul> | Works contractor  | Environmental Safeguards Specialist of PCU | 5,000      |

| Impact                                             | Project Phase | Source                                                           | Mitigation Hierarchy                                                          | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Responsible Party | Monitoring                                             | Cost (USD) |
|----------------------------------------------------|---------------|------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
|                                                    |               |                                                                  |                                                                               | <ul style="list-style-type: none"> <li>• All equipment and tools must be checked for suitability for the task.</li> <li>• All construction equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> <li>• Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>• Provide silencers on all noise generating equipment.</li> </ul>                                                                                                  |                   |                                                        |            |
| <b>Waste generation and inefficient management</b> | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul> | <ul style="list-style-type: none"> <li>• Abate or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Ensure that construction debris are collected from work sites to avoid blocking of drains and waterways.</li> <li>• Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>• Only licensed waste management companies must be engaged to collect and dispose of waste collected from the site.</li> <li>• Regular briefing or training on waste management must be provided to workers at the site.</li> <li>• Have SOPs for managing hazardous and non-hazardous waste.</li> </ul>                                                     | Works contractor  | Environmental Safeguards Specialist of PCU             | 20,000     |
| <b>Workplace accidents/incidents</b>               | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul> | <ul style="list-style-type: none"> <li>• Abate on site</li> </ul>             | <ul style="list-style-type: none"> <li>• Good housekeeping around work area must be ensured to prevent slips, trips &amp; falls.</li> <li>• Only trained and competent workers should be allowed to carry out work, and must be well briefed on safe working procedures.</li> <li>• Appropriate work platforms and PPE must be used for specific tasks such as work at height.</li> <li>• Mandatory and basic PPE including hardhat, hand gloves, safety goggles, HiVis and safety boots must be worn.</li> <li>• Have accident and incident reporting form available to record accidents and near-misses</li> </ul> | Works contractor  | Environmental Safeguards Specialist of PCU             | 20,000     |
| <b>Poor labour working conditions</b>              | Construction  | <ul style="list-style-type: none"> <li>• Project Site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>• Provide all workers with signed contracted that are consistent with national labour laws</li> <li>• Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                               | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |

| Impact                                           | Project Phase | Source                                                              | Mitigation Hierarchy                                               | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Responsible Party | Monitoring                                             | Cost (USD) |
|--------------------------------------------------|---------------|---------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
|                                                  |               |                                                                     |                                                                    | <ul style="list-style-type: none"> <li>Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                                                        |            |
| <b>Traffic management/Public safety concerns</b> | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>      | <ul style="list-style-type: none"> <li>Abate on site</li> </ul>    | <ul style="list-style-type: none"> <li>Hoard project site to prevent unauthorized entry</li> <li>Ensure all visitors accessing site are in appropriate PPE</li> <li>The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> <li>Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> <li>Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>Have checklists available to manage vehicle and equipment maintenance and management</li> <li>Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>Appropriate warning signs including reduced speed, "Men at Work", "No Parking" &amp; hazard triangle must be placed beside road facing oncoming traffic and a similar "End" sign after work area.</li> <li>Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>Have accident and incident reporting form to record accidents and near-misses.</li> </ul> | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 8,000      |
| <b>Fire outbreaks</b>                            | Construction  | <ul style="list-style-type: none"> <li>Project community</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source,</li> </ul> | <ul style="list-style-type: none"> <li>Create fire belts around project site to deal with any fire incidents</li> <li>Liaise with the Fire Service to sensitize workers and the community on fire risks</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 20,000     |

| Impact                       | Project Phase | Source                                                                              | Mitigation Hierarchy                                                                       | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Responsible Party | Monitoring                                             | Cost (USD) |
|------------------------------|---------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
|                              |               | interactions                                                                        | repair or remedy                                                                           | <ul style="list-style-type: none"> <li>Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                                                        |            |
| <b>Public health issues</b>  | Construction  | <ul style="list-style-type: none"> <li>Project-community interactions</li> </ul>    | <ul style="list-style-type: none"> <li>Avoid at source</li> </ul>                          | <ul style="list-style-type: none"> <li>Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>Provide female and male condoms to the community and workers.</li> <li>Conduct daily temperature screening of workers and visitors.</li> <li>Provide handwashing stations and sanitizers at all sites.</li> <li>Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>Encourage workers to get vaccinated.</li> <li>Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> <li>Provide female and male condoms to the community and workers.</li> </ul> | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 15,000     |
| <b>Security concerns</b>     | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>                      | <ul style="list-style-type: none"> <li>Abate or reduce at source, abate on site</li> </ul> | <ul style="list-style-type: none"> <li>Provide adequate security by liaising with Police to conduct regular patrols</li> <li>Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |
| <b>Gender based violence</b> | Construction  | <ul style="list-style-type: none"> <li>Project and community interaction</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source, repair or remedy</li> </ul>        | <ul style="list-style-type: none"> <li>Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> <li>Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>A minimum requirement of female employment should be indicated in contract documents</li> <li>Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> </ul>                                                                           | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |

| Impact                 | Project Phase | Source                                                            | Mitigation Hierarchy                                                          | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Responsible Party | Monitoring                                   | Cost (USD) |
|------------------------|---------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------|------------|
|                        |               |                                                                   |                                                                               | <ul style="list-style-type: none"> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul>                                                                                                                    |                   |                                              |            |
| <b>Operation Phase</b> |               |                                                                   |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                                              |            |
| <b>Soil erosion</b>    | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>• All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                                                                                                                            | Facility manager  | EPA, Agric Department, District Assembly EHU | 5,000      |
| <b>Air Pollution</b>   | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>• Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>• Suppress dust by watering dusty construction areas.</li> <li>• Ensure the use of nose mask in dusty environment.</li> </ul>                                                                                                    | Facility manager  | EPA, Agric Department, District Assembly EHU | 10,000     |
| <b>Water Pollution</b> | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>• Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> <li>• Manage leaked oil by placing trays under trucks to collect leaked oil.</li> <li>• Monitor volumes of water used and keep records</li> <li>• Promptly fix faulty or leaking pipes to preserve water</li> <li>• Prepare and implement a Pesticides Management Plan</li> <li>• Treat waste at source before discharge</li> </ul> | Facility manager  | EPA, Agric Department, District Assembly EHU | 7,000      |
| <b>Noise Nuisance</b>  | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>• A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> </ul>                                                                                                                                                                                                                         | Facility manager  | EPA, Agric Department, District Assembly EHU | 8,000      |

| Impact                                             | Project Phase | Source                                                          | Mitigation Hierarchy                                               | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Responsible Party | Monitoring                                   | Cost (USD) |
|----------------------------------------------------|---------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------|------------|
|                                                    |               |                                                                 |                                                                    | <ul style="list-style-type: none"> <li>Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> <li>All equipment and tools must be checked for suitability for the task.</li> <li>All equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> <li>Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>Provide silencers on all noise generating equipment.</li> </ul> |                   |                                              |            |
| <b>Waste generation and inefficient management</b> | Operation     | <ul style="list-style-type: none"> <li>Facility</li> </ul>      | <ul style="list-style-type: none"> <li>Reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>Only licensed waste management companies must be engaged to collect and dispose of waste collected.</li> <li>Regular toolbox talk on waste management must be provided to operatives/workers at the facility.</li> <li>Have SOPs for managing hazardous and non-hazardous waste.</li> </ul>                                                                                                                                                                                                                                                                                                                          | Facility manager  | EPA, Agric Department, District Assembly EHU | 20,000     |
| <b>Poor labour working conditions</b>              | Operation     | <ul style="list-style-type: none"> <li>Facility site</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source</li> </ul>  | <ul style="list-style-type: none"> <li>Provide all workers with signed contracted that are consistent with national labour laws</li> <li>Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> <li>Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     | Facility manager  | Agric Department, District Assembly EHU      | 10,000     |
| <b>Traffic management/Public safety concerns</b>   | Operation     | <ul style="list-style-type: none"> <li>Facility</li> </ul>      | <ul style="list-style-type: none"> <li>Abate on site</li> </ul>    | <ul style="list-style-type: none"> <li>Ensure all visitors accessing site are in appropriate PPE</li> <li>The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> <li>Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> </ul>                                                                                                                                                                                                                                                                           | Facility manager  | EPA, District Assembly EHU                   | 8,000      |

| Impact                      | Project Phase | Source                                                                             | Mitigation Hierarchy                                                                  | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Responsible Party | Monitoring                                                 | Cost (USD) |
|-----------------------------|---------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------|------------|
|                             |               |                                                                                    |                                                                                       | <ul style="list-style-type: none"> <li>• Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>• Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>• Have checklists available to manage vehicle and equipment maintenance and management</li> <li>• Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>• Appropriate warning signs are put in place, as required.</li> <li>• Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>• Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>• Have accident and incident reporting form to record accidents and near-misses.</li> </ul> |                   |                                                            |            |
| <b>Fire outbreaks</b>       | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source, repair or remedy</li> </ul> | <ul style="list-style-type: none"> <li>• Create fire belts around project site to deal with any fire incidents</li> <li>• Liaise with the Fire Service to sensitize workers and the community on fire risks</li> <li>• Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Facility manager  | EPA, Fire Service, Agric Department, District Assembly EHU | 5,000      |
| <b>Public health issues</b> | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or at source</li> </ul>                | <ul style="list-style-type: none"> <li>• Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>• Provide female and male condoms to the community and workers.</li> <li>• Conduct daily temperature screening of workers and visitors.</li> <li>• Provide handwashing stations and sanitizers at all sites.</li> <li>• Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>• Encourage workers to get vaccinated.</li> <li>• Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> </ul>                                                                                                                                                                                                                                                                     | Facility manager  | EPA, Health Directorate, District Assembly EHU             | 15,000     |

| Impact                                   | Project Phase | Source                                                                             | Mitigation Hierarchy                                                                             | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Responsible Party | Monitoring                                     | Cost (USD)     |
|------------------------------------------|---------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------|----------------|
|                                          |               |                                                                                    |                                                                                                  | <ul style="list-style-type: none"> <li>• Provide condoms to the community and workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                                                |                |
| <b>Snake bite risks</b>                  | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul>                    | <ul style="list-style-type: none"> <li>• Provide pickers with picker tools and PPE at subsidized rate to reduce exposure to bites</li> <li>• Identify a local health facility with regular supply and adequate stock of vials and designate as a referral facility for snake bites.</li> <li>• Sensitize locals on the importance of avoiding snakes and seeking early medical help after snake bites</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | PCU               | Environmental and Social Safeguards Specialist | 5,000          |
| <b>Security concerns</b>                 | Operation     | <ul style="list-style-type: none"> <li>• Community</li> </ul>                      | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul>                    | <ul style="list-style-type: none"> <li>• Provide adequate security by liaising with Police to conduct regular patrols or make private security arrangement</li> <li>• Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Facility manager  | District Security Committee, EPA               | 8,000          |
| <b>Gender based violence</b>             | Operation     | <ul style="list-style-type: none"> <li>• Workers, community</li> </ul>             | <ul style="list-style-type: none"> <li>• Avoid or reduce at source, repair and remedy</li> </ul> | <ul style="list-style-type: none"> <li>• Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> <li>• Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>• A minimum requirement of female employment should be indicated in contract documents</li> <li>• Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul> | Facility manager  | EPA, District Social Welfare Department        | 10,000         |
| <b>TOTAL COST OF ESMP IMPLEMENTATION</b> |               |                                                                                    |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                                                | <b>266,000</b> |

## Environmental Monitoring Matrix

| No.                       | Potential Environmental and Social Impacts  | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                       | Monitoring Site                                                                            | Frequency | Responsibility (Implementation/ Monitoring)     | Cost Estimate/ Year (USD) |
|---------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------|-------------------------------------------------|---------------------------|
| <b>CONSTRUCTION PHASE</b> |                                             |                                                                                                                                                                                                                                                                                                                                  |                                                                                            |           |                                                 |                           |
|                           | <b>Workplace accidents/incidents</b>        | <ul style="list-style-type: none"> <li>Records of accidents, incidents and near misses.</li> <li>Records of PPE disbursed</li> <li>Housekeeping</li> </ul>                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Construction site</li> </ul>                        | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|                           | <b>Poor labour working conditions</b>       | <ul style="list-style-type: none"> <li>Availability of copies of signed contracts</li> <li>Human Resource Management Plan/Recruitment Policy</li> <li>Complaints lodged by workers</li> </ul>                                                                                                                                    | <ul style="list-style-type: none"> <li>Construction site</li> </ul>                        | Quarterly | Environmental and Social Safeguards Specialists | 3,000                     |
|                           | <b>Soil impacts and sediment transport</b>  | <ul style="list-style-type: none"> <li>Observable change in turbidity of water in drains or water bodies</li> <li>Observable oil sheen in drain</li> <li>Observation of rills/gullies</li> </ul>                                                                                                                                 | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental Safeguards Specialist             | 4,000                     |
|                           | <b>Air and Noise Pollution</b>              | <ul style="list-style-type: none"> <li>Dust (PM2.5, PM10 and TSP)</li> <li>Emissions (NOx, SOx, TSP)</li> <li>Noise (dB) levels</li> <li>Number of complaints by residents/workers</li> </ul>                                                                                                                                    | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental Safeguards Specialist             | 5,000                     |
|                           | <b>Waste generation and disposal impact</b> | <ul style="list-style-type: none"> <li>Number of mobile toilets and dustbins provided on site</li> <li>Number of times waste is lifted in a week i.e. waste transfer notes</li> <li>Cleanliness of site/housekeeping</li> <li>Odour</li> <li>Presence of human waste on site</li> <li>Complaints by workers/residents</li> </ul> | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Weekly    | Environmental Safeguards Specialist             | 3,000                     |

| No.                      | Potential Environmental and Social Impacts       | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                                                                             | Monitoring Site                                                                            | Frequency | Responsibility (Implementation/ Monitoring)     | Cost Estimate/ Year (USD) |
|--------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------|-------------------------------------------------|---------------------------|
|                          | <b>Traffic management/Public safety concerns</b> | <ul style="list-style-type: none"> <li>Grievance records</li> <li>Traffic related incidents/accidents</li> <li>Records of accidents, incidents and near misses.</li> </ul>                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|                          | <b>Fire outbreaks</b>                            | <ul style="list-style-type: none"> <li>Fire related incidents/accidents</li> <li>Records of fire incidents and near misses.</li> <li>Number of functional fire extinguishers onsite</li> </ul>                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|                          | <b>Public health issues</b>                      | <ul style="list-style-type: none"> <li>Number of sensitization campaigns</li> <li>Number of condoms distributed to Contractor's staff in a month</li> <li>Number of STD cases reported to local health facilities involving encounters with Contractor's staff</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 4,500                     |
|                          | <b>Security and GBV concerns</b>                 | <ul style="list-style-type: none"> <li>Number of conflicts/cases reported to the Grievance Redress Committee/Community Liaison Officer</li> <li>Number of conflicts/cases dealt with by the Grievance Redress Committee</li> <li>Number of crimes such as theft, defilement and rape reported, investigated, and concluded by the police involving the Contractor's workers</li> </ul> | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 3,500                     |
| <b>OPERATIONAL PHASE</b> |                                                  |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                            |           |                                                 |                           |
|                          | <b>Workplace accidents/incidents</b>             | <ul style="list-style-type: none"> <li>Records of accidents, incidents and near misses.</li> <li>Records of PPE disbursed</li> <li>Housekeeping</li> </ul>                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Facility site</li> </ul>                            | Monthly   | HSE Manager                                     | 3,000                     |

| No. | Potential Environmental and Social Impacts | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                                                            | Monitoring Site                                                                          | Frequency   | Responsibility (Implementation/ Monitoring) | Cost Estimate/ Year (USD) |
|-----|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------|---------------------------------------------|---------------------------|
|     | <b>Poor labour working conditions</b>      | <ul style="list-style-type: none"> <li>• Availability of copies of signed contracts</li> <li>• Human Resource Management Plan/Recruitment Policy</li> <li>• Complaints lodged by workers</li> </ul>                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Facility site</li> </ul>                        | Monthly     | HSE Manager and HR Manager                  | 4,000                     |
|     | <b>Soil impacts and sediment transport</b> | <ul style="list-style-type: none"> <li>• Observable change in turbidity of water in drains or water bodies</li> <li>• Observable oil sheen in drain</li> <li>• Observation of rills/gullies</li> </ul>                                                                                                                                                                | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly     | HSE Manager                                 | 5,000                     |
|     | <b>Air and Noise Pollution</b>             | <ul style="list-style-type: none"> <li>• Dust (PM2.5, PM10 and TSP)</li> <li>• Emissions (NOx, SOx, TSP)</li> <li>• Noise (dB) levels</li> <li>• Number of complaints by residents/workers</li> </ul>                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly     | HSE Manager and Community Liaison Officer   | 3,000                     |
|     | <b>Water Quality</b>                       | <ul style="list-style-type: none"> <li>• GS 175:2017 5th Relevant Parameters where discharge is into community stream</li> <li>• GS1212, 2019 Relevant Parameters where discharge is into public drain</li> <li>• Temperature, pH, Conductivity, DO, BOD, Suspended solids, Nitrate, Phosphate, Oil/ Grease, Nickel, Cadmium, Coliforms (total and faecal)</li> </ul> | <ul style="list-style-type: none"> <li>• Facility's immediate environs</li> </ul>        | Bi-annually | HSE Manager and Community Liaison Officer   | 2,000                     |
|     | <b>Air and Noise Pollution</b>             | <ul style="list-style-type: none"> <li>• Dust (PM2.5, PM10 and TSP)</li> <li>• Emissions (NOx, SOx, TSP)</li> <li>• Noise (dB) levels</li> <li>• Number of complaints by residents/workers</li> </ul>                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly     | HSE Manager and Community Liaison Officer   | 3,000                     |
|     | <b>Waste generation and disposal</b>       | <ul style="list-style-type: none"> <li>• Presence of toilets and number dustbins provided on site</li> <li>• Number of times waste is lifted in a week</li> <li>• Cleanliness of site/housekeeping</li> <li>• Odour</li> <li>• Presence of human waste on site</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Weekly      | HSE Manager and Community Liaison Officer   | 5,000                     |

| No. | Potential Environmental and Social Impacts       | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                                                                       | Monitoring Site                                                                        | Frequency | Responsibility (Implementation/ Monitoring) | Cost Estimate/ Year (USD) |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------|---------------------------------------------|---------------------------|
|     |                                                  | <ul style="list-style-type: none"> <li>Complaints by workers/residents</li> </ul>                                                                                                                                                                                                                                                                                                |                                                                                        |           |                                             |                           |
|     | <b>Traffic management/Public safety concerns</b> | <ul style="list-style-type: none"> <li>Grievance records</li> <li>Traffic related incidents/accidents</li> <li>Records of all accidents, incidents and near misses.</li> </ul>                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 5,000                     |
|     | <b>Fire outbreaks</b>                            | <ul style="list-style-type: none"> <li>Fire related incidents/accidents</li> <li>Records of fire incidents and near misses.</li> <li>Number of functional fire extinguishers onsite</li> </ul>                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 3,000                     |
|     | <b>Public health issues</b>                      | <ul style="list-style-type: none"> <li>Number of sensitization campaigns</li> <li>Number of condoms distributed to workers or placed in washrooms in a month</li> <li>Prevalence of STD cases reported to local health facilities</li> </ul>                                                                                                                                     | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 4,500                     |
|     | <b>Security and GBV concerns</b>                 | <ul style="list-style-type: none"> <li>Number of conflicts/cases reported to the Grievance Redress Committee/Community Liaison Officer</li> <li>Number of conflicts/cases dealt with by the Grievance Redress Committee</li> <li>Number of crimes such as theft, defilement and rape reported, investigated, and concluded by the police involving workers or patrons</li> </ul> | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 3,500                     |
|     | <b>TOTAL COST FOR MONITORING</b>                 |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                        |           |                                             | <b>74,000</b>             |

## Grievance Redress Mechanism

The activities of the project may generate grievances arising from the interaction between project and local authorities/community, workers and the host community etc. Some potential grievances identified and likely to occur during project implementation include:

- Complaints from the local community on the conduct of workers, especially sexual harassment and other gender-based offenses;
- Complaints related to noise, dust, traffic incidents; and
- Restriction of access to persons who otherwise were using portions of land e.g. for grazing
- Failure to consider the recruitment of local man-labour;
- Non-respect of the habits and customs of the host community by the actors of the site;
- Non-compliance with the measures or provisions contained in the ESMP

In managing grievances, a Grievance Redress Mechanism will be employed and it will include:

- Setting up of a Grievance Redress Committee (GRC) at the community level (11 GRCs, 1 for each community) and the district level to receive and address grievances from stakeholders.
  - At the community level, the GRC will be made up of the Assemblyman, the Chief, a Youth Leader, and a representative of the project affected persons (PAPs). The Assemblyman will be responsible for receiving grievances and subsequently liaise with the other members of the GRC to have the issue resolved.
  - At the district level, the GRC will be made up of the District Planning Officer, District Lands Officer, A representative of the Agric Directorate, and District Social Welfare Officer.
- The PCU will constantly engage project affected persons through its Stakeholder and Public Disclosure Plan. This will keep the communities informed of developments on the project, including planned activities, project impacts and mitigation measures, grievance mechanism, the right to submit complaints and the compensation process.
- Building capacity of the Assemblymen to ensure they can engage the communities, record and ensure grievances are resolved.

Grievances are expected to be communicated either verbally (in a language of choice) or in writing to the GRC. Upon receipt of complaints, timely responses are expected to be given. It is expected that if grievances cannot be resolved locally, then these will be referred quickly to the District Council GRC for resolution.

Actions to be taken to address the grievance will be agreed upon by the GRC, and progress of implementation of agreed measures reported to the Local community, Metropolitan Assembly, PCU and Ministry of Food and Agriculture on a weekly and monthly basis.

**ESMP Implementation Budget**

| No                                      | Activity                                                                                              | Description                                                                                                                                                          | Responsibility | Total Cost, US\$ | Source of finance |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------------|
| <b>A</b>                                | <b>Institutional measures</b>                                                                         |                                                                                                                                                                      |                |                  |                   |
| 1                                       | Remuneration of the project's environmental safeguard specialist over 5 years                         | Implementation of ESMP                                                                                                                                               | PIU            | 120,000          | Project funds     |
| 2                                       | Remuneration of the project's social safeguard specialist over 5 years                                | Implementation of ESMP                                                                                                                                               | PIU            | 120,000          | Project funds     |
| 3                                       | Remuneration of the MDC environmental and social safeguard specialist over 10 months                  | Implementation of ESMP                                                                                                                                               | PIU            | 20,000           | Project funds     |
| 4                                       | Remuneration of the environmental and social safeguard specialist of the works company over 12 months | Implementation of ESMP                                                                                                                                               | PIU            | 24,000           | Project funds     |
| <b>B</b>                                | <b>Technical measures</b>                                                                             |                                                                                                                                                                      |                | <b>266,000</b>   |                   |
|                                         | <b>Specific technical measures</b>                                                                    |                                                                                                                                                                      |                |                  |                   |
| 5                                       | Awareness creation on Project                                                                         | Stakeholder engagement                                                                                                                                               | PIU/ESS/SSS    | 5,000            | Project funds     |
| 6                                       | Capacity building for key stakeholders                                                                | Training workshop on National and AfDB requirements, EIA procedures, social measures and incorporating environmental and social measures etc. in contract documents. | PIU/Consultant | 10,000           | Project funds     |
| 7                                       | Public engagement/ sensitization                                                                      | Sensitization and engagement of project affected persons                                                                                                             | PIU/Consultant | 15,000           | Project funds     |
| 8                                       | Grievance Redress Mechanism (GRM)                                                                     |                                                                                                                                                                      | PIU/ESS/SSS    | 79,000           | Project funds     |
| 9                                       | Decommissioning                                                                                       | Dismantling and removal of structures and equipment and waste disposal                                                                                               |                | 15,000           | Project funds     |
| <b>C</b>                                | <b>Monitoring and Audits</b>                                                                          |                                                                                                                                                                      |                |                  |                   |
| 10                                      | Monitoring of environmental and social parameters of the works                                        |                                                                                                                                                                      | PIU/ESS/SSS    | 267,000          | Project funds     |
| 11                                      | Annual E&S compliance Audits                                                                          | To evaluate the compliance of the implementation of the project's E&S measures (ESMP)                                                                                | PIU/ESS/SSS    | 150,000          | Project funds     |
| <b>TOTAL of the ESMP IMPLEMENTATION</b> |                                                                                                       |                                                                                                                                                                      |                | <b>1,091,000</b> |                   |

## 1.0 INTRODUCTION

### 1.1 Background of the Project

The African Development Bank has launched the Feed Africa Strategy that takes a commodity value chain and Agro-Ecological Zones (AEZ) approach with emphasis on commodities that possess comparative advantages and potential for import substitution, future demand, and poverty alleviation. Also, in response to the novel coronavirus, COVID-19, the Feed Africa Response to the Impact of COVID-19 (FAREC) outlines measures to increase localized food production via targeted provision of agricultural inputs such as improved seeds, fertilizer, and other agro-chemicals through smart input subsidies targeting farmers and tying interventions to seasonal timetables. It also provides measures for post-harvest management to produce highly nutritious food and staple products that store for longer periods, policy support for free flow of food and inputs distribution (“green channels”) and increased food production.

The Government of the Republic of Ghana through the Ministry of Food and Agriculture (MoFA), and with assistance from the African Development Bank (AfDB) through the Feed Africa Strategy, seeks to develop the savannah areas as part of Government’s ongoing efforts in Planting for Food and Jobs (PFJ) and Rearing for Food and Jobs (RFJ) programs. This support is to allow medium scale commercial farmers and their out growers to expand areas under cultivation for rice, soybean and maize under PFJ, which feeds into poultry value chain under RFJ. This integrated approach supports elements of growing at scale and provision of market outlets for smallholder farmers, especially women and youth.

The Savannah Agriculture Value Chain Development Project (SADP) is being implemented to serve as part of post COVID-19 reconstruction efforts aimed at addressing disruptions in food systems of the Government of Ghana. It builds on earlier successes under the Savannah Zone Agriculture Productivity Improvement Project (SAPIP) and Savannah Investment Programme (SIP) that have so far expanded the production of maize and soybean from 80 hectares in 2018 to 14,000 hectares in 2021.

This current SADP is expected to build on the achievements made and to further expand production of rice, soybean and maize by additional 8,000 hectares by 2026. The SADP project, is being implemented in nine (9) different Metropolitan, Municipal and District Assemblies (MMDAs) namely (1) Tamale Metro, (2) Mion, and (3) Savelugu in the Northern Region; (4) East Mamprusi in the North East Region; (5) West Gonja in the Savannah Region; (6) Bawku West in the Upper East Region; (7) Wa Municipal, (8) Sissala East, and (9) Nandom in the Upper West Region of Ghana.

In line with environmental permitting requirements (**Annex 1a and b**) as provided under the Environmental Protection Agency (EPA) Act, 1994 (Act 490) and the Environmental Assessment Regulations of 1999 (LI1652), this Environmental Impact Assessment (ESIA) has been carried out to help understand the likely implications of the proposal in order to inform the environmental permitting decision-making prior to project implementation in the Sissala East Municipality. Also, the ESIA will ensure the project and subprojects comply with the requirements of the Bank's Integrated Safeguards System (ISS).

## 1.2 Objective of the Project

The overall goal of the project is to increase production of livestock (particularly poultry meat), contribute to industrialization, youth employment and food security. The project is expected to contribute to the Government's industrialization agenda, including One District One Factory (1D1F), support skills development and entrepreneurship for women and youth, and build resilient food systems in the savannah areas of northern and middle belts of Ghana.

## 1.3 Purpose of the ESIA

The scope of work for the ESIA study is to among other things:

- Provide technical description of the proposed project and identify all activities of environmental/social concerns;
- Establish the existing environmental and socio-economic baseline conditions of the project area of influence;
- Predict and examine all the significant environmental impacts on the surrounding communities and the general environment during implementation of the proposed project and advise on appropriate mitigation and abatement measures against potential adverse impacts;
- Provide a monitoring program for predicted impacts and mitigation measures;
- Provide an Environmental and Social Management Plan (ESMP) integrating Grievance Redress Mechanism (GRM);
- Document the socio-economic and cultural advantages and disadvantages associated with the proposed project for stakeholders and interested groups to make an informed decision on the level of environmental compromise and permitting.
- Provide a plan to guide the development of an emergency response plan for the project;
- Provide guidelines to be followed in the event of decommissioning; and
- Carry out public consultations and include the outcome in the ESIA report with arrangements to address stakeholder concerns.

## 1.4 Methodology for the Assessment Process

This report has been prepared in accordance with applicable African Development Bank and Ghanaian environmental assessment guidelines and involves the following activities:

- **Data gathering;** The Consultant assembled and evaluated relevant baseline data relating to the biophysical and socio-economic environment to be influenced by the project. The baseline data include climate, topography and relief, geology and soil, vegetation, demography, access to basic services and socio-economic conditions. In addition, this report has scoped out the issues and provided general assessment of the impacts.
- **Stakeholder identification and consultations;** Key stakeholders identified include Ministry of Food and Agriculture (Department of Agriculture, Sissala East), Environmental Protection Agency (EPA) of Ghana, Savannah Zone Productivity Improvement Program (SAPIP) and Savannah Investment Programme (SIP), Sissala East Municipal Assembly, Lands Commission, Fire Service, Produce Suppliers,

Commercial Farmers, Farmer Based Organizations, Assembly Representatives, Community Focus Groups including Traditional Authority, Youth Groups, Women Groups etc. Stakeholders were engaged from November 19 – 25, 2021 and the outcome of engagements with key stakeholders have been reviewed and incorporated in the study (**See Details in Section 10 and Annex 5**).

- **Data collation and analysis;** The report preparation involved review of project documents, related Environmental Impact Statements (EIS), as well as EPA, and AfDB reference documents as follows:
  - Project Documents (Project Implementation Document);
  - District Profile for the Sissala East Municipality;
  - Medium Term Development Plan;
  - Population and Housing Census Report, 2015 and 2021;
  - Technical sheets for project development;
  - Ghana EPA Guidelines
  - GoG and AfDB Reference Documents
  - Sector policy documents and regulations; and
  - Relevant international conventions.

### **1.5 The ESIA Report Content and Structure**

EPA guidelines for preparation of ESIA and the AfDB Integrated Safeguards System (ISS) guided the preparation of this ESIA report. The outline of the report includes the following:

- A non-technical executive summary;
- An introduction describing the ESIA purpose, objectives, approach and methodology;
- A description of the project, with an emphasis on subproject scope;
- Analysis of alternatives;
- Policy, legal and administrative framework;
- Baseline environmental and social conditions of the Sissala East Municipality;
- Potential environmental and social issues and impacts;
- Proposed mitigation measures;
- Environmental and social management plan requirements;
- Institutional arrangement for the implementation of the ESMP;
- Monitoring and reporting arrangements;
- Capacity building and training required to implement the ESMP;
- Stakeholder Engagement and public consultations and disclosure;
- ESMP implementation budget;
- Conclusion; and
- Annexes.

## 2.0 PROJECT DESCRIPTION

### 2.1 Project Scope

As part of the comprehensive strategy by the current administration of the country is to resolve the perennial challenges with the livestock sector, and provide incremental jobs in the country, the government has designed a strategic program intervention, Rearing for Food and Jobs (RFJ). This program is to overcome the food and nutritional deficits situation and reduce drastically the importation of basic livestock commodities where Ghana has both competitive and comparative advantage to produce, as well as create more jobs within the agriculture and related sectors. The RFJ program focuses on five key livestock species in the country including cattle, sheep, goats, pigs and poultry.

The overall goal of the project is to increase production of livestock (particularly poultry meat), contribute to industrialization, youth employment and food security. The project is expected to contribute to the Government's industrialization agenda, including One District One Factory (1D1F), support skills development and entrepreneurship for women and youth, and build resilient food systems in the savannah areas of northern and middle belts of Ghana. This would be achieved through the facilitation of private sector investment in value chains associated with meat production, improved productivity and production of feedstock made up of rice, maize and soybean, a purposive intervention in poultry value chain. At least 8,000 Ha of rice, maize and soybean is expected to be put under cultivation and small-medium scale poultry farmers supported. It is expected to increase productivity of soybean from average of 0.8 tons/ha to 3.0 tons/ha; maize from 2.5 tons/ha to 5.5tons/ha and rice from 3.0 tons/ha to 3.5 tons/ha. At least 50 million additional broiler produced by 2026. Increased domestic production seeks to reduce importation of these basic commodities, creating jobs for women and youth along the priority value chains.

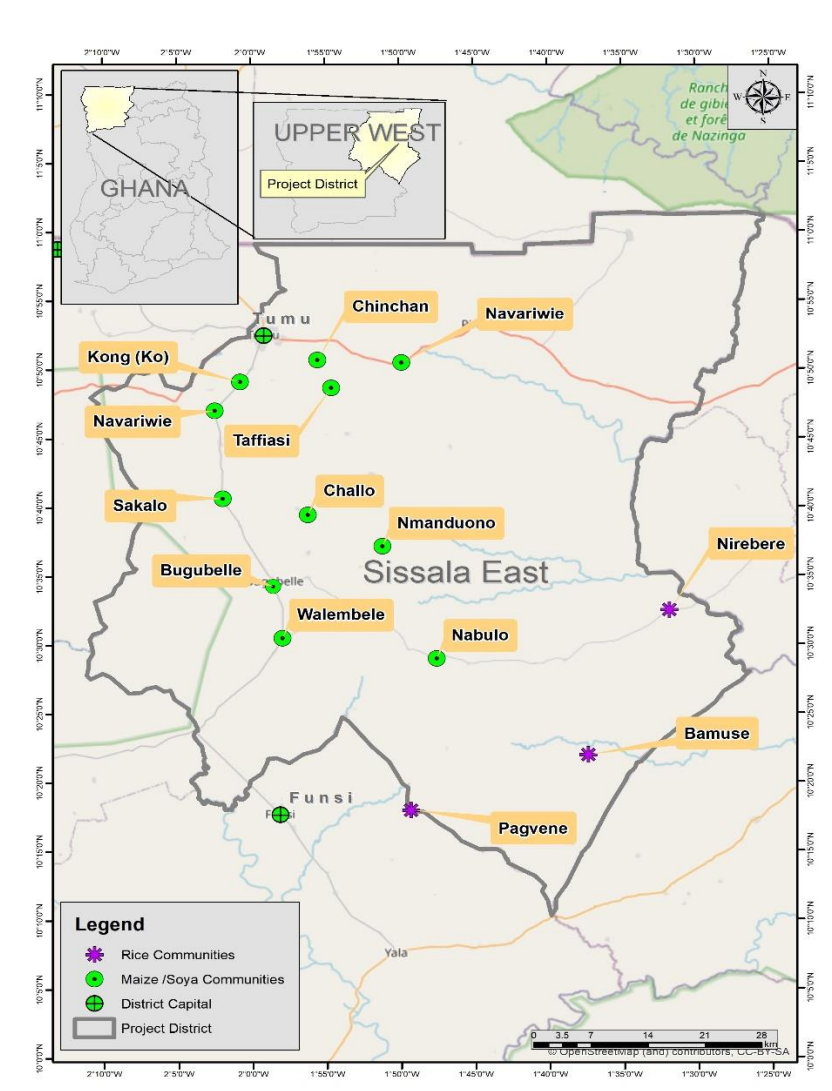
### 2.2 Project Locations

The programme will cover generally the Savannah Ecological Zone of Ghana for the Technologies for African Agricultural Transformation (TAAT-s) and specifically focus on 9 Districts that have the potential for maize, soya and rice production. It is also imperative to consolidate the gains of other programmes and projects that operated or are operating in these districts.

In the Sissala East Municipality, there is the potential for the production of rice in lowland areas especially in valleys. For the production of maize and soya, majority of the upland areas are suitable and the potential beneficiary communities, listed in **Table 2-1 and shown in Figure 2-1**, have been selected based on these reasons.

**Table 2- 1: Potential beneficiary communities**

| District                  | Potential Upland Communities for Maize and Soya production | Potential Rice Valley Communities |
|---------------------------|------------------------------------------------------------|-----------------------------------|
| Sissala East Municipality | Taffiasi                                                   | Pagvene                           |
|                           | Chinchang                                                  | Bamuse                            |
|                           | Navariwie                                                  | Nirebere                          |
|                           | Kong                                                       |                                   |
|                           | Sakalu                                                     |                                   |
|                           | Wellembelle                                                |                                   |
|                           | Challu                                                     |                                   |
|                           | Nabulo                                                     |                                   |
|                           | Nmanduonu                                                  |                                   |
|                           | Bugubelle                                                  |                                   |

**Figure 2- 1: Location map of Sissala East Municipality showing potential beneficiary communities**

## 2.3 Project Components

The proposed project will have three components namely (i) Component 1: Production Development, (ii) Component 2: Integrated Agribusiness and Value Chain Development, and (iii) Component 3: Project Management and Institutional Support.

### **Component 1: Production Development:**

This component aims to support farmers with interventions including land development in inland valleys for rice production, following land and soil suitability surveys. It will also support land development under no-tillage systems using conservation agriculture. It will promote the use of economic trees as part of alley-cropping and promote measures to reduce bush fires. These measures will include the enforcement of community by-laws and establishment of fire belts. It will promote the use of hybrid seeds and bio-pesticides for the control of invasive pests including fall armyworm. There will be no land acquisition under this project. One key criterion for participating farmers is for them to own land under cultivation for which an expansion is required. There are no settlements/population in the inland valleys where water management structures are to be developed. Activities regarding land development will therefore not cause displacement (temporal or permanent).

#### ***Sub-component 1.1 Commercial Production of Maize and Soybean under Conservation Agriculture***

- Production and promotion of certified hybrid maize and improved soybean seeds, in collaboration with seed companies.
- Support to land development and mechanisation services.
- Training of producers, haulers, aggregators and marketers on sanitary and phytosanitary (SPS) issue relating to maize and soybeans
- Farmer mobilisation and awareness creation on conservation agriculture.
- Train project staff and farmers on Integrated Crop and Pest Management (ICPM), including biological control options for the management of Fall Army Worm (FAW) and aspergillus on Maize and Soybeans.
- Conduct surveillance and collect data on pests attacking the Maize and Soybeans in the project zones with specific reference to FAW.
- Support out-grower contractual arrangements
- Use of ICT for soil suitability assessment and GIS mapping of commercial farms
- Promotion of climate smart agriculture, environmental conservation best practices, including use of economic trees such as shea, dawadawa, mango, cashew etc.
- Community sensitization, Establishment of fire belts and enforcement of community fire by-laws to deal with the impact of bush fires.
- Promote the use of Nitrogen fixing inoculants to boost soybean yield.

### ***Sub-component 1.2 Promotion of Small and Medium Scale Commercial Poultry Production***

- Input support to small and medium scale commercial poultry farmers (poultry cages, day old chicks, feed stock, vaccines, veterinary drugs, etc.)
- Supply of local chicken to vulnerable households, especially women headed households
- Support to poultry diseases surveillance, diagnosis and control
- Training and capacity building on business development, animal husbandry and health
- Support to hatchery expansion, including parent stock for broilers, guinea fowls and local chicken

### **Component 2: Integrated Agribusiness and Value Chain Development:**

This component seeks to support actors along the value chain, particularly post-production actors. Key interventions include the promotion of quality standards for maize and soybean production, storage and processing, support the establishment of small-to-medium scale poultry processing units at district level to access financing, and enhance access to market information (e.g. quantity, quality, timing and pricing). It will support skills development for women and youth, promote entrepreneurship and mentoring programs, especially for poultry value chain. Women headed households in vulnerable communities would be supported to produce local chicken to improve their income status and help meet their nutritional requirements. Locations of infrastructure to be supported, such as poultry housing and poultry processing units for private sector is not yet determine as this is demand driven. A detailed site-specific environmental assessment will be undertaken for each private sector operation, in compliance with the environmental laws of Ghana before any support will be extended during project implementation.

#### ***Sub-component 2.1 Value Addition and SME Development***

- Promotion of quality standards for rice, maize and soybean production, storage and processing
- Support business development, including improvements in business processes of existing commercial farmers
- Enhance access to market information (e.g. quantity, quality, timing and pricing)
- Promote the development of allied services (packaging, new distribution networks for poultry products, transport services, new agro-input delivery systems, etc.)
- Support and training of poultry producers on ISO 9000 & other necessary certification requirements on poultry to access premium market.
- Support to feed millers to improve feed stock and expand processing capacity
- Enhance investment facilitation and promotion to increase the number of commercial producers and processors in the Savannah regions
- Support for cold chain development for chicken

#### ***Sub-component 2.2 Youth/Women Empowerment and Nutrition***

- Promote other income generating activities for women and youth, including as shea, dawadawa, mango, cashew production and processing
- Support women and youth on marketing and supply of poultry products to key institutions and programs including the school feeding program
- Capacity building for women and youth in small-scale commercial poultry business management and entrepreneurship, including mentorship.

- Promote the consumption of local poultry and eggs to improve household nutrition, and in particular maternal and child nutrition to prevent stunting
- Promote the breed improvement of local poultry through cockerel distribution program.

### **Component 3: Project Management and Institutional Support:**

This component involves the development of annual work plan and budget, establishment of results-based monitoring and evaluation system, conducting beneficiary impact assessment and other studies. It will also include the conduct of project mid-term review, project completion reports, technical reviews, video and pictorial documentation of success stories, support to the coordination and implementation of key government flagships including Rearing for Food and Jobs and Planting (RfJ) for Food and Jobs (PfJ).

#### ***Sub-Component 3.1 Knowledge Management, Monitoring and Evaluation***

- Development of annual work plan and budget
- Establishment of results-based management system for M&E
- Conduct Beneficiary Impact Assessment.
- Conduct Project Mid-Term Review.
- Conduct Project Completion/Technical Review (PCR).
- Video and pictorial documentation of success stories
- Undertake relevant studies, including socio-economic surveys, soil suitability surveys
- Development and Implementation of Environmental and Social Management Plan (ESMP)
- Enhance capacity to mobilize private sector investors in the maize-soybean-poultry industry.

#### ***Sub-component 3.2 Project Coordination***

- Upgrade the project coordination unit with additional staff
- Procure vehicles for PCU, office equipment and furniture as may be required.
- Facilitate annual financial audits.
- Facilitate procurement audit.
- Facilitate Project Steering Committee (PSC) meetings.

### **Project Activities in the Sissala East Municipality**

The specific project activities to be implemented in the Sissala East Municipality at the preparatory, construction and operation phases of the project implementation are:

#### ***Preparatory Phase***

- Identification of potential beneficiary communities for the production of maize, soybeans and rice
- Conduct of relevant studies, including socio-economic surveys
- Development and Implementation of Environmental and Social Management Plan (ESMP)
- Request for applications and screening of applicant farmers using the following criteria:
  - ✓ Prospective farmers must be interested in the cultivation of soybean, maize and rice and should operate an out-grower or an in-grower scheme.
  - ✓ Interested farmers shall be willing to cultivate these crops under Conservation Agricultural

- practices.
- ✓ Prospective farmers should own a contiguous land of not less than 100ha suitable for production with potential to expand further.
- ✓ A substantial area of land should have been developed and prepared for farming by the prospective farmer.
- ✓ The dedicated farmland of at least 100 ha shall be made available solely for the Conservation Agriculture for the next five (5) years.
- ✓ The farm should be accessible and motorable throughout the farming season. Farms located along major roads would be an added advantage.
- ✓ Prospective farmers should own at least a tractor with implements to compliment the use of other CA equipment. Ownership of other equipment such as Boom Sprayer, No-Till planters and Fertilizer Spreaders provide great opportunity for participation.
- ✓ Prospective Farmers must show an indication of access to storage facilities for inputs and harvested grain.
- ✓ Prospective farms must be located within the Northern Savannah Ecological Zone of Ghana
- ✓ Prospective Farmers should have access to technical services (Extension agents, Mechanization operators etc.) to support farm development and management.
- Assessment of soil suitability and GIS mapping of commercial farms using ICT.

### ***Construction Phase***

- Provision of support for land development and access to mechanisation services.
- Production and promotion of certified hybrid maize and improved soybean seeds, in collaboration with seed companies.
- Promotion of climate smart agriculture, environmental conservation best practices, including use of economic trees such as shea, dawadawa, mango, cashew etc.
- Training and capacity building on business development, animal husbandry and health
- Enhance capacity to mobilize private sector investors in the maize-soybean-poultry industry

### ***Operation Phase***

- Support out-grower contractual arrangements
- Conduct surveillance and collect data on pests attacking the Maize and Soybeans in the project zones with specific reference to FAW.
- Community sensitization, Establishment of fire belts and enforcement of community fire by-laws to deal with the impact of bush fires.
- Promote the use of Nitrogen fixing inoculants to boost soybean yield
- Promotion of quality standards for rice, maize and soybean production, storage and processing
- Support business development, including improvements in business processes of existing commercial farmers
- Enhance access to market information (e.g. quantity, quality, timing and pricing)
- Promote the development of allied services (packaging, new distribution networks for poultry products, transport services, new agro-input delivery systems, etc.)
- Support to feed millers to improve feed stock and expand processing capacity
- Enhance investment facilitation and promotion to increase the number of commercial producers and processors in the Savannah regions
- Promote other income generating activities for women and youth, including shea, dawadawa,

- mango, cashew production and processing
- Support women and youth on marketing and supply of poultry products to key institutions and programs including the school feeding program
- Capacity building for women and youth in small-scale commercial poultry business management and entrepreneurship, including mentorship.

### 3.0 ANALYSIS OF ALTERNATIVES

#### 3.1 Options for Consideration

The proposed project considered some feasible options in respect of their potential environmental and social impacts. These are analysed in **Table 3-1** and include:

- Cropping system;
- Rice production system;
- Type of irrigation;
- Power supply;
- Sources of water;
- Waste management; and
- No option.

**Table 3- 1: Analysis of Alternative Project Options**

| Table 8-2: Analysis of Alternative Project Options |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                |                                                                                                                                 |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Option/ Method of Deployment                       | Potential Environmental, Social, Technological and Economic Implications                                                                                                                                                                                 |                                                                                                                                                                                                                                                | Preferred Option                                                                                                                |
| Cropping system                                    |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                |                                                                                                                                 |
| 1. Mono-cropping                                   | <b>Advantages</b><br>1. Growing one type of crop all year round on the same land.<br>2. Allows large expanses of land to be cropped and harvested at the same time.<br>3. Easier to be mechanized.<br>4. Less types of equipment and machinery required. | <b>Disadvantages</b><br>1. Higher risk of crop failure due to pest and disease infestation or drought.<br>2. Higher risk of investment loss due to crop failure.<br>3. Higher rate of nutrient depletion due to the same nutrient requirement. | <b>Option 1, Mono cropping is considered as the preferred option due to the large expanse of land and ease of mechanization</b> |
| 2. Mixed Cropping                                  | <b>Advantages</b><br>1. Growing of two or more crops on different portions of the same land.<br>2. Spreads risk of crop failure.<br>3. Diversifies sources of income.                                                                                    | <b>Disadvantages</b><br>1. Different maturity periods of crops affect planning.<br>2. Different requirements of plants require different types of equipment, fertilizers and other farm inputs.                                                |                                                                                                                                 |
| Rice production system                             |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                |                                                                                                                                 |
| 1. Upland production                               | <b>Advantages</b><br>1. Grown in rain-fed naturally well-drained soils<br>2. Plants have less exposure to alterations between aerobic and anaerobic environments<br>3. Rice varieties are drought tolerant                                               | <b>Disadvantages</b><br>1. It is largely for subsistence production<br>2. Soils are usually nutrient deficient<br>3. Have lower yield<br>4. Susceptible to weed invasion and diseases                                                          | <b>Option 1, Mono cropping is considered as the preferred option due to the large</b>                                           |

| Option/ Method of Deployment                                       | Potential Environmental, Social, Technological and Economic Implications                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Preferred Option                                                                                                                      |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>2. Lowland valley production</b>                                | <b>Advantages</b> <ol style="list-style-type: none"> <li>1. Fields can be flooded either by rainfall or irrigation</li> <li>2. Lowland soils are usually fertile</li> <li>3. Suitable for commercial production</li> <li>4. Has higher yields</li> </ol>                                                                                                                                                               | <b>Disadvantages</b> <ol style="list-style-type: none"> <li>1. Water level cannot be controlled exposing crops to serious floods or drought</li> <li>2. Crops are exposed to alterations between aerobic and anaerobic environments</li> </ol>                                                                                                                                                                                                                          | <b>Option 2, Lowland valley production is the preferred option due to its higher yields and suitability for commercial production</b> |
| <b>Type of irrigation</b>                                          |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                       |
| <b>1. Surface irrigation (flood and furrow irrigation methods)</b> | <b>Advantages</b> <ol style="list-style-type: none"> <li>1. Surface irrigation is one of the most common types of irrigation systems.</li> <li>2. Uses the force of gravity to distribute the water, which is meant to then seep into the soil.</li> <li>3. Less costly compared to other irrigation systems</li> <li>4. Suitable for high water demand crops.</li> <li>5. Can be used in windy conditions.</li> </ol> | <b>Disadvantages</b> <ol style="list-style-type: none"> <li>1. Not suitable for crops which are sensitive to flooding.</li> </ol>                                                                                                                                                                                                                                                                                                                                       | <b>Option 3, Drip irrigation is preferred as it is water efficient and can be installed in any type of landscape</b>                  |
| <b>2. Sprinkler irrigation</b>                                     | <b>Advantages</b> <ol style="list-style-type: none"> <li>1. High application efficiency</li> <li>2. Can be combined with fertilizer application.</li> <li>3. Can be applied at areas with variable topography.</li> </ol>                                                                                                                                                                                              | <b>Disadvantages</b> <ol style="list-style-type: none"> <li>1. Water can be lost because of high winds or evaporation.</li> <li>2. Irrigating the entire field uniformly can be difficult or tedious if the system is not properly designed</li> <li>3. Water remaining on plants' leaves may promote fungal and other diseases.</li> <li>4. If fertilizers are included in the irrigation water, plant leaves can be burned, especially on hot, sunny days.</li> </ol> |                                                                                                                                       |
| <b>3. Drip Irrigation</b>                                          | <b>Advantages</b> <ol style="list-style-type: none"> <li>1. Consideration for vegetable crops, but requires pumping from laterals to storage tanks into a piped system. Can be done but needs full and multiple farmer cooperation</li> </ol>                                                                                                                                                                          | <b>Disadvantages</b> <ol style="list-style-type: none"> <li>1. Very costly compared to other irrigation systems.</li> <li>2. Requires highly skilled labour in design, installation and operation.</li> <li>3. Highly sensitive to clogging.</li> </ol>                                                                                                                                                                                                                 |                                                                                                                                       |

| Option/ Method of Deployment  | Potential Environmental, Social, Technological and Economic Implications                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                            | Preferred Option                                                                                                                             |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                               | <div>2. Water is delivered at or near the root zone of plants, drop by drop.</div> <div>3. In modern agriculture, drip irrigation is often combined with plastic mulch, further reducing evaporation.</div> <div>4. High efficiency of fertilizer application.</div> <div>5. This method can be the most water-efficient method of irrigation, if managed properly, since evaporation and runoff are minimized.</div> |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| Power supply                  |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| 1. National grid              | <b>Advantages</b> <div>1. The cost of electricity is low decreasing production cost</div>                                                                                                                                                                                                                                                                                                                             | <b>Disadvantages</b> <div>1. Unreliable power supply from frequent power cuts</div>                                                                                                                                                                                                                                                                        | Solar energy installations (Option 2) such as solar powered pumps are preferred for the pump irrigation.                                     |
| 2. Solar energy installations | <b>Advantages</b> <div>1. Presents a clean and sustainable source electricity</div> <div>2. Low operational costs</div> <div>3. Meets the objective of Technology transfer and climate friendliness</div>                                                                                                                                                                                                             | <b>Disadvantages</b> <div>1. Expensive capital cost</div>                                                                                                                                                                                                                                                                                                  |                                                                                                                                              |
| Sources of Water              |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                              |
| 1. Groundwater                | <b>Advantages</b> <div>1. Relatively reliable source all year round</div> <div>2. Seasonal variations are minimal</div> <div>3. Relatively stable water quality</div>                                                                                                                                                                                                                                                 | <b>Disadvantages</b> <div>1. Expensive to access and abstract</div> <div>2. Challenges of over- exploitation to meet high demands and associated threat of land subsidence</div> <div>3. May require farms of boreholes to meet demand</div> <div>4. Threat of high iron and fluoride concentration in aquifers in the northern parts of the country</div> | Option 2, which is the use of surface water appears to be the most preferred option as it will be easier to implement water management plans |
| 2.Surface water               | <b>Advantages</b> <div>1. Easier to abstract and use</div>                                                                                                                                                                                                                                                                                                                                                            | <b>Disadvantages</b> <div>5. Seasonal variations in flow</div> <div>6. Vulnerable to pollution</div>                                                                                                                                                                                                                                                       |                                                                                                                                              |

| Option/ Method of Deployment            | Potential Environmental, Social, Technological and Economic Implications                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Preferred Option                                                                                                                                                                                      |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.Rain harvesting                       | <b>Advantages</b><br>1. Easy to trap and store                                                                                                                                                                                    | <b>Disadvantages</b><br>1. Source is unreliable<br>2. Evaporation losses are high in the dry months of the year                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                       |
| Waste Management Option                 |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                       |
| 1. Composting plant                     | <b>Advantages</b><br>1. Improvements in soil quality.<br>2. Enhances the structure of the soil.<br>3. Eco-friendly.<br>4. Fully organic fertilizer.<br>5. Higher yields.                                                          | <b>Disadvantages</b><br>1. Requires initial investment.<br>2. Efficiency depends on the amount of organic waste<br>3. May attract rats, snakes, and bugs.<br>4. Requires space<br>5. Unpleasant smell                                                                                                                                                                                                                                                                                                     | <b>Option 1, composting is a better option as it is ecofriendly and could be used to improve soil quality on farms. It will also keep waste away from landfill, which already have limited space.</b> |
| 2. Municipal Waste Dump/ landfill sites | <b>Advantages</b><br>1. Straightforward concept to deal with waste.<br>2. Filled land can be reused for other community purposes.<br>3. Landfills can prevent environmental dumping.<br>4. Good for waste that is non-recyclable. | <b>Disadvantages</b><br>1. Completed landfill areas can settle and requires maintenance.<br>2. Requires proper planning, design, and operation.<br>3. Can contribute to groundwater pollution.<br>4. Landfills can be a breeding ground for bacteria.                                                                                                                                                                                                                                                     |                                                                                                                                                                                                       |
| No Option                               |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                       |
|                                         | <b>Advantages</b><br>1. Funds for the project implementation could be used for solving other development problems, albeit less dire                                                                                               | <b>Disadvantages</b><br>1. Non implementation of the project will continue to deprive project communities of access to economic opportunities and food security associated with agriculture. Also, locals who would have been offered employment will continue environmentally unfriendly livelihood activities such as felling of trees for charcoal, game hunting leading to bushfires etc.<br>2. Government will lose revenue and the opportunity to leverage import substitution for economic growth. | <b>This option is not preferable</b>                                                                                                                                                                  |

#### 4.0 POLICY, LEGAL AND REGULATORY FRAMEWORK

National and sector legislation and policies relevant to the agriculture sector have been reviewed in this section. Also, institutional requirements, international conventions, AfDB safeguard policies, and national environmental quality guidelines for the management of environmental and social issues have been considered. These have been summarized in **Table 4-1** under the following themes:

- Policies and Plans
- National legal framework;
- Agriculture sector legislation and related requirements;
- Local governance, planning and other institutional requirements;
- Public Health, Safety, Security and Social Protection;
- Environmental legislation in Ghana;
- African Development Bank safeguard policies; and
- International conventions.

##### 4.1 Policies and Plans

The policies and plans reviewed and applied in the assessment include:

- Ghana Shared Growth and Development Agenda, 2010;
- National Environmental Policy, 2012;
- National Land Policy, 1999;
- National Water Policy, June 2007;
- National Climate Change Policy, 2013;
- National Gender Policy, 2015;
- Riparian Buffer Zone Policy, 2014;
- National Irrigation Policy, June 2010;
- Food and Agriculture Sector Development Policy, FASDEPII (MOFA);
- National Environmental Action Plan/Policy, 1994; and
- National Employment Policy, 2012

**Table 4- 1: Relevant Legal Framework and Key Compliance Requirements**

| No. | Policies and Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Applicability to Proposed Project                   |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 1.  | <p><b><u>Ghana Shared Growth and Development Agenda, 2010</u></b></p> <p>It provides for the Vision for the Agricultural, Environment and Natural Resource Sectors in Chapter four. The main focus of the agricultural sector is to accelerate the modernization of agriculture and ensure its linkage with industry through the application of science, technology and innovation.</p> <p>The modernized agriculture sector is expected to underpin the transformation of the economy through job creation, increased export earnings, food security, and supply of raw materials for value addition and rural development as well as significant reduction in the incidence of poverty.</p> | The SADP is in accord with the focus of the policy. |
| 2.  | <p><b><u>National Environmental Policy, 2012</u></b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The proposed project seeks to promote sustainable   |

| No. | Policies and Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Applicability to Proposed Project                                                                                                                                                                                                                                                                                                                                    |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>development by including economic, social and environmental considerations.</p>                                                                                                                                                                                                                                                                                   |
| 3.  | <p><b><u>National Land Policy, 1999</u></b></p> <p>The key aspects of the policy relevant to the project include:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> | <p>The project sites will not be in protected areas, forests or wildlife estate.</p> <p>The implementation of the project will conform to the environmental laws of the country which includes, registration with EPA, Preliminary Environmental and Social Assessment and obtaining an environmental permit prior to commencement.</p>                              |
| 4.  | <p><b><u>National Water Policy, 2007</u></b></p> <p>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:</p> <ul style="list-style-type: none"> <li>(i) encouraging efficient use of fertilizers to reduce pollution of water bodies and ensure conservation of water, and</li> <li>(ii) promoting and encouraging water use efficiency techniques in agriculture and reducing transmission losses of water in irrigation systems.</li> </ul>                                                                                                                                                                                                                                               | <p>The project's Environmental and Social Management Plan (ESMP) must include mitigation measures against over-exploitation of water resources and also against water pollution which emanate from agrochemicals and unsustainable agricultural practices. The irrigation designs must include water use efficiency techniques especially for the chosen crops".</p> |
| 5.  | <p><b><u>National Environmental Action Plan/Policy, 1994</u></b></p> <p>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.</p> <p>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.</p>                                                                                                           | <p>The design and implementation of the proposed project will take into consideration measures to promote the sustainable use of natural resources and ensure environmental management.</p>                                                                                                                                                                          |

| No. | Policies and Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Applicability to Proposed Project                                                                                                                                                                                                                                                                                                                                                                 |
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| 6.  | <p><b><u>National Employment Policy, 2012</u></b></p> <p>The National Employment Policy indicates that poverty is still high at about 28.5 percent and that there is a strong correlation between the employment situation and poverty. The policy states that the key source of demand for labour emanates from the productive sectors of the economy, namely, agriculture, industry and service. One of the key strategies of the employment policy is to <i>promote farm and non-farm rural employment through modernization of agriculture, improving the productivity of farmers and contract farming arrangements, promoting effective linkages between farm and non-farm activities among others.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>The proposed project is consistent with the strategy of the employment policy to promote farm and non-farm rural employment.</p>                                                                                                                                                                                                                                                               |
| 7.  | <p><b><u>National Gender Policy, 2015</u></b></p> <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>The project will not discriminate against women and the vulnerable in the local communities. The criteria for selecting beneficiary farmers will consider gender and disability</p>                                                                                                                                                                                                            |
| 8.  | <p><b><u>National Climate Change Policy, 2013</u></b></p> <p>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 infrastructure among others. Under the Agriculture and Food Security area, the key objectives are:</p> <ul style="list-style-type: none"> <li>▪ Develop climate-resilient agriculture and food systems for all agro-ecological zones; and</li> <li>▪ Develop human resource capacity for climate-resilience.</li> </ul> <p>The key actions to achieve these objectives which are related to the proposed project include:</p> <ul style="list-style-type: none"> <li>▪ Develop climate-resilient cropping and livestock systems as well as crop varieties and livestock breeds tolerant to flooding, drought and salinity;</li> <li>▪ Promote appropriate technologies for small-scale irrigation, water re-use and water harvesting; and</li> <li>▪ Improve post-harvest capacity, e.g., storage and processing facilities and infrastructure.</li> </ul> | <p>The climate-resilient technology to be adopted for the proposed project includes use of improved seed varieties and irrigation systems.</p> <p>The project will develop human resource capacity to adapt to changing climate as part of the modernisation of the scheme. and improve post-harvest management through the provision of storage and processing facilities and infrastructure</p> |
| 9.  | <p><b><u>Buffer Zone Policy, 2011</u></b></p> <p>The policy aims at providing comprehensive measures and actions that would guide the creation of vegetative buffers for the preservation and functioning of the nation's water bodies and vital ecosystems. The recommended buffer widths provided in the Policy include:</p> <ul style="list-style-type: none"> <li>▪ Minor perennial streams: 10 to 20 meters; and</li> <li>▪ Important seasonal streams: 10 to 15 meters.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>The project will ensure that the necessary buffer distances are observed on project sites to preserve water bodies.</p> <p>Also, the setback distances provided for the water pollution hazards will be applied in the siting of storage facilities for</p>                                                                                                                                    |

| No. | Policies and Plans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Applicability to Proposed Project                                                                                                                                                                                                                                                                                         |
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|     | <p>The Policy also designates the following as water pollution hazards and must be setback from any stream or water body by the following distances:</p> <ul style="list-style-type: none"> <li>▪ Storage of hazardous substances – 45 meters</li> <li>▪ Raised septic systems – 75 meters</li> <li>▪ Solid waste landfills – 90 meters</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | agrochemicals, septic systems and waste bins.                                                                                                                                                                                                                                                                             |
| 10. | <p><b><u>National Irrigation Policy, 2010</u></b></p> <p>The objective of irrigation policy is to expand and improve the efficiency of irrigation to support agricultural development and growth. It will be pursued with principles of sustainability in operation and maintenance, and use of natural resources, equitable access by women to benefits of irrigation, and the rights to participate in irrigation management. The targets of the Ghana Irrigation Policy are to attain national food security, increase livelihood options, intensify and diversify production of agricultural commodities.</p>                                                                                                                                                                                                                                                                         | The proposed project involves the setting up of irrigation systems. The beneficiary farmers will have access to the irrigation systems to increase their productivity and enhance their livelihoods.                                                                                                                      |
| 11. | <p><b><u>Food and Agriculture Sector Development Policy (FASDEP)</u></b></p> <p>The revised FASDEP of 2006 (FASDEP II) emphasizes the sustainable utilization of all resources and commercialization of activities in the sector with market-driven growth in mind and with emphasis on environmental sustainability.</p> <p>The Medium Term Agriculture Sector Investment Plan (METASIP) developed to implement FASDEP II over the medium term 2011-2015 includes the following programmes:</p> <ul style="list-style-type: none"> <li>▪ Food security and emergency preparedness;</li> <li>▪ Improved growth in incomes;</li> <li>▪ Increased competitiveness and enhanced integration into domestic and international markets;</li> <li>▪ Sustainable management of land and environment; and</li> <li>▪ Science and technology applied in food and agriculture development</li> </ul> | The project will significantly advance the achievement of the FASDEP objectives through improved efficiency and management of the scheme. The project will ensure sustainable utilization of resources and sustainable land and environmental management including through the use of a more efficient irrigation system. |

## 4.2 National Regulatory Framework

The regulatory areas reviewed and applied in the assessment in compliance with national requirements include:

- The Constitution of the Republic of Ghana, 1992;
- Ghana Investment Promotion Centre Act 1994, Act 478;
- Environmental Protection Agency Act 1994, Act 490;
- Environmental Assessment Regulations 1999, LI 1652
- Fees and Charges (Amendment) Instrument, 2019 (LI 2386);
- Water Resources Commission Act 1996, Act 522;
- The Water Use Regulations 2001, LI 1692;
- Ghana Meteorological Agency Act 2004, Act 687.

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Applicability to Proposed Project                                                                                                                                                                                                                                                                                                                                      |
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| 12. | <p><b><u>The Constitution of the Republic of Ghana, 1992</u></b></p> <p>The Constitution includes some provisions to protect the right of individuals to private property and also sets principles under which citizens may be deprived of their property in the public interest (described in Articles 18 and 20).</p> <p>Article 18 provides that “Every person has the right to own property either alone or in association with others.”</p> <p>In Article 20, the Constitution describes the circumstances under which compulsory acquisition of immovable properties in the public interest can be done. It includes:</p> <ul style="list-style-type: none"> <li>• the development or utilization of property for public benefit</li> <li>• reasonable justification is provided for acquisition</li> <li>• the prompt payment of fair and adequate compensation</li> <li>• resettlement of displaced persons on suitable alternative land with due regard for their economic well-being, social and cultural values.</li> </ul> | <p>This is the overarching legislative framework of Ghana.</p> <p>Articles 18 and 20 provides conditions for the acquisition of property (in this case land) for development projects and compensation</p>                                                                                                                                                             |
| 13. | <p><b><u>Ghana Investment Promotion Centre Act 1994, Act 478</u></b></p> <p>The Ghana Investment Promotion Centre Act 1994 (Act 478) requires that every investor wishing to invest in the country must in its appraisal of proposed investment projects or enterprises, “...have regard to any effect the enterprise is likely to have on the environment and measures proposed for the prevention and control of any harmful effects to the environment...”.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The proposed project has environmental impacts and measures have been proposed in the ESIA/ESMP to address the impacts.</p>                                                                                                                                                                                                                                         |
| 14. | <p><b><u>Environmental Protection Agency (EPA) Act 1994, Act 490</u></b></p> <p>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 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.</p>                                                                                                                                                                                                                   | <p>The project will be in compliance with the Environmental Assessment (EA) procedures for approval of the EPA.</p> <p>The proposed project will involve the clearing of vegetation and generation and disposal of waste. Also, considering that project area is in an environmentally sensitive area according to EPA classification, a permit has to be obtained</p> |
| 15. | <p><b><u>Environmental Assessment Regulations 1999, LI 1652</u></b></p> <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>The SADP will be guided by LI 1652 including registering sub-projects with the EPA and obtaining an environmental permit.</p>                                                                                                                                                                                                                                       |
| 16. | <p><b><u>Fees and Charges (Amendment) Instrument, 2019 (LI 2386)</u></b></p> <p>The Fees and Charges (Amendment) Instrument, 2019 (LI 2386) sets out the fee regime for processing and environmental permits, associated with the Environmental Assessment Regulations 1999, (LI 1652). The Environmental Assessment (Amendment) Regulations, 2014 (LI 2216) has been replaced by this new instrument.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Processing and permit fees are required for initial registration, submission of ESIA report and registration of sub-projects.</p>                                                                                                                                                                                                                                   |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Applicability to Proposed Project                                                                                                                                          |
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| 17. | <p><b><u>Water Resources Commission (WRC) Act 1996, Act 522</u></b></p> <p>The Water Resources Commission Act, 1996 (Act 522) establishes and mandates the Water Resources Commission (WRC) as the sole agency responsible for the regulation and management of the utilisation of water resources and for the co-ordination of any policy in relation to them.</p> <p>Section 13 prohibits the use of water (divert, dam, store, abstract or use water resources or construct or maintain any works for the use of water resources) without authority. Section 16 empowers the Commission to grant Water Rights (water use permits) to prospective users. The Act states under Section 24 that any person who pollutes or fouls a water resource beyond the level that the EPA may prescribe commits an offence and is liable on conviction to a fine or a term of imprisonment or both.</p>                                                                     | The proposed project will involve sourcing water from surface and groundwater. The appropriate authorization will be sought from the WRC prior to the commencement of work |
| 18. | <p><b><u>Water Use Regulations 2001, LI 1692</u></b></p> <p>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.</p> | Project managers will ensure the continuous renewal of water use permits through the appropriate tariff setting and compliance with permit requirements                    |
| 19. | <p><b><u>Ghana Meteorological Agency 2004, Act 687</u></b></p> <p>This Act establishes the Ghana Meteorological Agency, which replaces the Meteorological Services Department. The Agency is to provide meteorological information, advice, and warnings for the benefit of agriculture, civil and military aviation among others to mitigate the effects of natural disasters such as floods, storms and droughts on socio-economic development and projects. The Agency is to provide the accurate data on climatic which are relevant for establishing climate change trends.</p>                                                                                                                                                                                                                                                                                                                                                                              | The project managers will liaise with the Ghana Meteorological Agency regularly especially in seeking meteorological information and advice                                |

### 4.3 Agriculture Sector Legislation and Related Requirements

The agriculture sector legislation reviewed include:

- The Irrigation Development Authority Regulations, 1987 (L.I. 1350)
- Irrigation Development Authority (Irrigation Water Users Association) regulations, 2016 (LI 2230);
- Plants and Fertilizer Act 2010 (Act 803);

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                    | Applicability to Proposed Project                                     |
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| 20. | <p><b><u>The Irrigation Development Authority Regulations, 1987 (L.I. 1350)</u></b></p> <p>The regulations provide procedures for managing irrigation projects including water management within such projects. Ghana Irrigation Development Authority's (GIDA) Technical Guidelines for Irrigated Agriculture, 2004, gives further details on how to effectively manage water</p> | The SMEs will be guided by the procedures outlined in the regulations |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Applicability to Proposed Project                                                                                                                                                                                                                           |
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|     | for irrigated agriculture including water supply, distribution and application management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                             |
| 21. | <p><b><u>Irrigation Development Authority (Irrigation Water Users Association) regulations, 2016 (LI 2230)</u></b></p> <p>LI 2230 proposes that persons who use irrigation water and are not less than fifteen in number may form an association after those persons have set up a provisional initiative team to identify the service area of the proposed association and a founders' committee, which may not exceed twelve potential members of the association. Persons who qualify to form the association are those who possess land on the basis of landholding system and use the land with water supplied from the irrigation infrastructure. The regulation is applicable associations formed on government irrigation infrastructure. The management body of the association shall include the General Assembly, Management Committee, Oversight Committee and Dispute Settlement Committee.</p> | SADP will establish irrigation systems and is therefore bound by the requirements of the regulation.                                                                                                                                                        |
| 22. | <p><b><u>Plants and Fertilizer Act 2010 (Act 803)</u></b></p> <p>The Act provides for the efficient conduct of plant protection to prevent the introduction and spread of pests and diseases, to regulate imports and exports of plants and planting materials; the regulation and monitoring of the exports, imports and commercial transaction in seeds and related matters; and control and regulation of fertilizer trade.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | The Plant Protection Regulatory Services Division (PPRSD) of MoFA will ensure that all seeds/plant materials are safe and also put in monitoring mechanism to prevent the spread of pests and diseases from the project site to other parts of the country. |

#### 4.4 Local Governance and Planning Requirements

The relevant legislation reviewed include:

- Local Governance Act, 2016 (Act 936);
- National Building Regulations, 1996 (LI 1630);
- The State Lands Act, 1962 (Act 125);
- Lands Commission (LC) Act 2008, Act 767;
- Land Use and Spatial Planning Act, 2016 (Act 925); and

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Applicability to Proposed Project                                                                                                           |
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| 23. | <p><b><u>Local Governance Act, 2016 (Act 936)</u></b></p> <p>This Act establishes and regulates the local government system and gives authority to the 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.</p> | The input of the Physical Planning and Roads Departments of the District Assemblies will be sought in designing water distribution networks |
| 24. | <p><b><u>National Building Regulations, 1996 (LI 1630)</u></b></p> <p>The National Building Regulations, 1996 (LI 1630) make it an offence for any individual to undertake any development without the acquisition of a Building Permit from the appropriate authority. This ensures that buildings</p>                                                                                                                                                                                                                 | The project will involve development of agricultural infrastructure such as sheds, storage, hatcheries etc. and the                         |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Applicability to Proposed Project                                                                                                                                                            |
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|     | are well planned and are in conformity with the Assembly's plan designs of an area. The LI 1630 ensures that buildings are well planned, consistent with the Assembly's spatial plan for an area.                                                                                                                                                                                                                                                                                                                       | necessary building permit will be acquired.                                                                                                                                                  |
| 25. | <b><u>The State Lands Act, 1962 (Act 125)</u></b><br>The Act 125 vests the authority to acquire land for the public interest in the President of the Republic. It also gives responsibility for registering a claim on the affected person or group of persons, and provides details of the procedure to do this. The State Lands Act, 1962 provides some details to be taken into consideration when calculating compensation such as definitions for cost of disturbance, market value, replacement value, and so on. | The project does not involve resettlement. However, in the event of any form of displacement or disturbance, due process will be followed in accordance with relevant provisions of this Act |
| 26. | <b><u>Lands Commission (LC) Act, 2008 (Act 767)</u></b><br>The Lands Commission Act 2008 re-establishes the Lands Commission to integrate the operations of public service land institutions in order to secure effective and efficient land administration to provide for related matters. The objectives of the Commission are to (i) promote the judicious use of land by the society and (ii) ensure that land development is in conformity with the nation's development goals.                                    | The SADP will be implemented in line with the objectives of the Commission for sustainable development of land and conform to the development goals of the MMDAs.                            |
| 27. | <b><u>Land Use and Spatial Planning Act, 2016 (Act 925)</u></b><br>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 SADP project design will be guided by planning schemes and local plan guides developed by the Land Use and Spatial Planning Departments/District Assemblies                              |

#### 4.5 National Labour, Environmental Quality, Health, Safety and Social Guidelines

The reviewed legislation includes:

- Labour Act, 2003 (Act 651);
- Occupational Safety and Health Policy of Ghana (Draft, 2004);
- Workmen's Compensation Law, 1987 (PNDCL 187);
- National Workplace HIV/AIDS Policy;
- Environmental Impact Assessment Guideline for the agricultural Sector (EPA, 2010)
- Ghana Standard for Drinking Water (GS 175:2017 5th)
- Ghana Standard for Environmental Protection - Requirements for Effluent Discharge (GS1212, 2019);
- 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);
- Factories, Offices and Shops Act, 1970 (Act 328);
- Water Resources Commission (WRC) Act 1996, Act 522;
- Ghana National Fire Service Act, 1997 (Act 537);
- Fire Precaution (Premises) Regulations, 2003 (LI1724).

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Applicability to Proposed Project                                                                                                                                                                                                 |
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| 28. | <p><b><u>Labour Act, 2003 (Act 651)</u></b></p> <p>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 “<i>an imminent and serious danger to his or her life, safety or health</i>”.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                           | Construction activities could result in injuries and fatalities. HSE issues have been duly assessed and provided for in the proposed ESMP for the project                                                                         |
| 29. | <p><b><u>Occupational Safety and Health Policy of Ghana (Draft, 2004)</u></b></p> <p>The statement of the Occupational Safety and Health Policy of Ghana (Draft, 2004) is: ‘to prevent accidents and injuries arising out of or linked with or occurring in the course of work, by minimising as far as reasonably practicable the cause of the hazards in the working environment and, therefore the risk to which employees and the public may be exposed’. The policy is derived from provisions of the International Labour Organisation (ILO) Conventions 155 and 161. The policy document highlights specific strategies, activities promotion and awareness creation which ensure that workers engaged at the construction and operation stages of the project are protected.</p>                                                                      | Potential sources of accidents and injuries that could occur in the course of work, have been identified and incorporated into safeguards for minimising safety and health risks and hazards as required by the draft OSH Policy. |
| 30. | <p><b><u>Workmen’s Compensation Law, 1987 (PNDCL 187)</u></b></p> <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | The Labour policy and employment contracts will provide for workmen compensation in the event of injury.                                                                                                                          |
| 31. | <p><b><u>National Workplace HIV/AIDS Policy</u></b></p> <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                      | The project duration will be short-term and use just a few migrant workers. This will reduce the potential for HIV spread but an HIV policy will be provided as required by the national policy                                   |
| 32. | <p><b><u>Environmental Impact Assessment Guidelines for the agricultural Sector (EPA, 2010)</u></b></p> <p>The Agriculture Sector Guidelines is meant to assist the Environmental Protection Agency (EPA) in the implementation of its Environmental Impact Assessment procedures in Ghana. The document is in two parts.</p> <p>Part I deals with the background and methodology. Areas covered include overview of the agricultural sector, environmental assessment processes, environmental management programme and project decommissioning.</p> <p>Part II covers information and tools used in the environmental impact assessment. This includes the legal framework for EIA procedures in agriculture, general screening criteria, environmentally sensitive areas in agriculture and impact identification, evaluation and mitigation measures.</p> | These guidelines were taken into consideration in preparing this ESIA report. Also, all other project activities will follow these guidelines                                                                                     |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Applicability to Proposed Project                                                                                                                                                                                |
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|     | It is intended to provide guidelines that will be used through all stages of an Agricultural Project Cycle; i.e. identification, preparation, appraisal, implementation and post-implementation monitoring.                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
| 33. | <b><u>Ghana Standard for Drinking Water (GS 175- 2017)</u></b><br><br>The Ghana Standard specifies the requirements for drinking water obtained from “prepared waters” or “waters defined by origin”. The standard also applies to packaged/bottled drinking water but not packaged/bottled natural mineral water.                                                                                                                                                                                                | The project water requirements are for farming purposes and therefore this standard is not applicable                                                                                                            |
| 34. | <b><u>Ghana Standard for Environmental Protection - Requirements for Effluent Discharge (GS1212, 2019)</u></b><br><br>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.                                                                                                                                                                      | Effluent from both construction and operation phases will be managed as specified in the proposed ESMP                                                                                                           |
| 35. | <b><u>Ghana Standards for Environment and Health Protection - Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236, 2019)</u></b><br><br>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 the proposed ESMP                                                                                                                                |
| 36. | <b><u>Ghana Standards for Health Protection - Requirements for Ambient Noise Control (GS 1222, 2018)</u></b><br><br>Ghana Standards for Health Protection - Requirements for Ambient Noise Control (GS 1222, 2018) specifies the requirements for acceptable ambient noise levels within 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 | Noise generated at both the construction and operation stages will be monitored as stated in the proposed ESMP to ensure it does not exceed acceptable limits                                                    |
| 37. | <b><u>Ghana Standards for Environment and Health Protection - Requirements for Motor Vehicle Emissions (GS1219, 2018)</u></b><br><br>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 (such as combine harvester, etc.), 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 the proposed ESMP                                                          |
| 38. | <b><u>Factories, Offices and Shops Act, 1970 (Act 328)</u></b><br><br>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 workers.                           | Warehouses for storage of materials and project offices will be registered with the FID. Accidents/incidents will be captured in the HSE policy. Also, relevant safety notices will be posted at vantage points. |
| 39. | <b><u>Ghana National Fire Service Act, 1997 (Act 537)</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The project area is prone to bushfires so the Fire Service will                                                                                                                                                  |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Applicability to Proposed Project                                                                                                                                                                 |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 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. | be engaged to provide education/sensitization on fire prevention and fighting.                                                                                                                    |
| 40. | <b><u>Fire Precaution (Premises) Regulations, 2003 (LI1724)</u></b><br><br>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 warehouses and project offices.                                                                                                                            |
| 41. | <b><u>The Fire Precaution (Premises) Regulations 2003, LI 1724</u></b><br><br>The Fire Precaution (Premises) Regulations 2003 (LI 1724) requires all premises intended for use as workplaces to have Fire Certificates and confers enforcement powers on the Ghana National Fire Service (GNFS) to demand a fire certificate for premises that are put to use as a place of work.                                                                                                                                                                                                                                                                                         | Fire certificates will be obtained for warehouses and project offices.                                                                                                                            |
| 42. | <b><u>Control of Bush Fires Law of 1983 (PNDCL 46)</u></b><br><br>It seeks to control the setting of bushfires by criminalizing the intentional, reckless, or negligent causing of such fires and holding the offender liable for all consequences of the fire.                                                                                                                                                                                                                                                                                                                                                                                                           | Bushfire is a risk to the proposed project and will be guided by these Laws to take lawful action against any such offender.                                                                      |
| 43. | <b><u>Control and Prevention of Bushfire law, PNDCL 229</u></b><br><br>Section 2 defines “starting of a bushfire”. A person starts a bushfire if an action of that person results in the uncontrolled burning of a farm, forest or grassland. The Chief Conservator of Forests or the Chief Game and Wildlife Officer may authorize starting of fires by authorized officers in Conservation Areas under section 4.                                                                                                                                                                                                                                                       | The project area has been designated as an environmentally sensitive area as climatic conditions make it prone to bushfires. Measures have been proposed in this report to deal with fire risks.  |
| 44. | <b><u>The Children’s Act 1998, Act 560</u></b><br><br>The Act spells out the rights of the child, quasi-judicial/judicial child adjudication, parentage /custody/access/maintenance, fosterage/ adoption and employment of children issues. The Act defines a child as a person below the age of 18 years. The minimum age for admission of a child to employment is fifteen years and the minimum age for the engagement of a person in hazardous work is eighteen years. No person shall engage a child in exploitative labour and labour is exploitative of a child if it deprives the child of its health, education or development.                                  | SADP will be guided by this Act in the employment of labour for the proposed project and will ensure all labour engaged by the Contractors are not below the minimum age.                         |
| 45. | <b><u>Alternative Dispute Resolution Act 2010 (Act 798)</u></b><br><br>The purpose of the Act is to “...provide for the settlement of disputes by arbitration, mediation and customary arbitration, to establish an Alternative Dispute Resolution Centre and to provide for related matters.” The Act further defines Alternative Dispute Resolution “as the collective description of methods of resolving disputes otherwise than through the normal trial process” (Section 135). The ADR Act covers both domestic and international arbitration in Ghana and the enforcement of both domestic and foreign arbitral awards within the jurisdiction.                   | SADP will ensure that the alternative dispute resolution option is used to address disputes and conflicts instead of the more expensive and time-consuming legal court system under this project. |

#### **4.6 Institutional Framework**

The stakeholder institutions identified include:

- Ministry of Food and Agriculture;
- Ghana Irrigation Development Authority;
- Irrigation Company of Upper Region Limited (ICOUR);
- Water Resources Commission;
- Lands Commission;
- Environmental Protection Agency;
- Local Government Authority; and
- Traditional Authorities.

The roles and responsibilities of the Project Coordinating Unit (PCU), implementing agencies and other stakeholders, legislative and regulatory requirements for the implementation of the ESMP are provided under section 7 of this report.

| No. | Institutional Framework and Key Implementation Responsibilities for the project in general and subprojects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Roles and responsibilities in implementing project's ESMP                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | <p><b><u>Ministry of Food and Agriculture (MOFA)</u></b></p> <p>MOFA promotes sustainable agriculture and agribusiness through research and technology development, effective extension and other support services to farmers, processors, and traders for improved human livelihood. The Food and Agriculture Sector Development Policy (FASDEP II) and the Medium Term Agricultural Sector Investment Plan (METASIP) seeks to guide development and interventions in the agriculture sector. The Savanna Agricultural Value Chain Development Project (SADP) of MoFA also seeks to develop agriculture in Ghana in line with the country's efforts at poverty reduction and ensuring food security by promoting inclusive commercial farming along selected commodity value chains.</p>                                                                                                                                                                                                                                                                                                                                                                                                                      | Regional and District Departments of Agriculture have the mandate of offering extension services and support to ensure sustainability and the successful implementation of the project |
| 2.  | <p><b><u>Ghana Irrigation Development Authority (GIDA)</u></b></p> <p>GIDA is a semi-autonomous agency of MOFA which was established by the Supreme Military Council Decree 85 (SMCD) of 1977 to explore all water resources for livelihood options in agriculture at appropriate scales for all communities. Its functions include formulating, developing and implementing irrigation and drainage plans for all year round agriculture production, livestock and fish culture in Ghana. Currently, its services and activities comprise:</p> <ul style="list-style-type: none"> <li>▪ Developing design standards for irrigation infrastructure;</li> <li>▪ Designing irrigation infrastructure and related facilities e.g. dams, ponds, and tube-wells, conveyance structures;</li> <li>▪ Carrying out land-use planning in areas earmarked for irrigation development;</li> <li>▪ Providing public irrigation facilities;</li> <li>▪ Providing technical services for the development of irrigation facilities;</li> <li>▪ Providing technical and managerial services for effective use of irrigation facilities; and</li> <li>▪ Developing and disseminating adaptive irrigation technology.</li> </ul> | GIDA will provide technical advice on the design and installation of the irrigation system.                                                                                            |
| 3.  | <p><b><u>Water Resources Commission (WRC)</u></b></p> <p>WRC was established by an Act of Parliament (Act 522 of 1996) with the mandate to regulate and manage Ghana's Water Resources and co-ordinate government policies in relation to them. The Act stipulates that ownership and control of all water resources are vested in the President on behalf of the people, and clearly defines the WRC as the overall body responsible for water resources management in Ghana. The functions of the WRC as established under Act 522 among other things are to:</p> <ul style="list-style-type: none"> <li>▪ Formulate and enforce policies in water resources conservation, development and management in the country;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SADP must obtain water use permit from WRC and collaborate with the WRC in the protection of water bodies                                                                              |

| No. | Institutional Framework and Key Implementation Responsibilities for the project in general and subprojects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Roles and responsibilities in implementing project's ESMP                                                                                                                                                                                                                                    |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <ul style="list-style-type: none"> <li>Coordinate the activities of the various agencies (public and private) in the development and conservation of water resources;</li> <li>Enforce, in collaboration with relevant agencies, measures to control water pollution; and</li> <li>Be responsible for appraising water resources development project proposals, both public and private, before implementation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                              |
| 4.  | <p><b><u>Local Government Authority</u></b></p> <p>The Regional Coordinating Council (RCC) and the Metropolitan/Municipal/District Assemblies (MMDAs) are responsible for the overall development of the region and metropolis/municipality/district respectively.</p> <p>Acts 462 and 480, which established the current district assembly structure, designate the District/Municipal/Metropolitan Assembly as the planning authority, charged with the overall development of the district.</p> <p>With regard to environmental management at the district level, the District Environmental Management Committees (DEMC) has been set up by law (Act 462) to among other things:</p> <ul style="list-style-type: none"> <li>promote and provide guidelines for the establishment of community-level environmental committees to put into effect the environmental programmes of the Assembly in the community; and</li> </ul> <p>Plan and recommend to the DA, strategies and activities for the improvement and protection of the environment with emphasis on fragile and sensitive areas, river courses etc.</p> | <p>The project is located in the Sissala East District and will be influenced by decisions and plans of the Northern Regional Coordinating Council and the identified Assembly. The Assembly will play key roles in the successful implementation and related activities of the project.</p> |
| 5.  | <p><b><u>Lands Commission</u></b></p> <p>The Lands Commission was established by Article 258 of the 1992 Constitution and the Lands Commission Act, 2008 (Act 767). The functions of the Lands Commission include amongst others;</p> <ul style="list-style-type: none"> <li>advise the Government, local authorities and traditional authorities on the policy framework for the development of particular areas of the country to ensure that the development of individual pieces of land is coordinated with the relevant development plan for the area concerned;</li> <li>ensure that through sound, sustainable land use planning, socio-economic activities are consistent with sound land use through sustainable land use planning in the long-term national development goals; and</li> </ul> <p>promote community participation and public awareness at all levels in sustainable land management and development practices to ensure the highest and best use of land.</p>                                                                                                                                 | <p>The SADP will be implemented in line with the objectives of the Commission for sustainable development of land and conform to the development goals of the MMDAs.</p>                                                                                                                     |

| No. | Institutional Framework and Key Implementation Responsibilities for the project in general and subprojects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Roles and responsibilities in implementing project's ESMP                                                                                                                                                                                                                                   |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.  | <p><b><u>Environmental Protection Agency</u></b></p> <p>The EPA is the body responsible for regulating the environment and ensuring the implementation of government policies on the environment. The functions of the Agency include:</p> <ul style="list-style-type: none"> <li>ensuring compliance with any laid down environmental impact assessment procedures in the planning and execution of development projects, including compliance in the respect of existing projects;</li> <li>promoting effective planning in the management of the environment;</li> <li>imposing and collecting environmental protection levies in accordance with the Environmental Protection Agency Act 1994, Act 490 or regulations made under the Act; and</li> <li>acting in liaison and co-operation with government agencies, District Assemblies and other bodies and institutions to control pollution and generally protect the environment.</li> </ul>                                                                                                                                                                       | SADP will follow and abide by all EPA procedures in the implementation of the project.                                                                                                                                                                                                      |
| 7.  | <p><b><u>Local Government Authority</u></b></p> <p>The Regional Coordinating Council (RCC) and the Metropolitan /Municipal/District Assemblies (MMDAs) are responsible for the overall development of the region and metropolis/municipality/district respectively.</p> <p>Acts 462 and 480, which established the current district assembly structure, designate the District/Municipal/Metropolitan Assembly as the planning authority, charged with the overall development of the district.</p> <p>With regard to environmental management at the district level, the District Environmental Management Committees (DEMC) has been set up by law (Act 462) to among other things:</p> <ul style="list-style-type: none"> <li>promote and provide guidelines for the establishment of community-level environmental committees to put into effect the environmental programmes of the Assembly in the community; and</li> <li>Plan and recommend to the DA, strategies and activities for the improvement and protection of the environment with emphasis on fragile and sensitive areas, river courses etc.</li> </ul> | The project is located in the Sissala East Municipality and will be influenced by decisions and plans of the Upper West Regional Coordinating Council and the identified Assembly. The Assembly will play key roles in the successful implementation and related activities of the project. |
| 8.  | <p><b><u>Traditional Authorities</u></b></p> <p>In Ghana, people of common descent owe allegiance to a symbol of collective authority, such as the 'stool' for the Akans of southern Ghana or the 'skin' for the northern peoples. Traditional authorities play a role in the administration of the area. At the village level, family and land disputes and development issues are also traditionally dealt with by the village chief and elders.</p> <p>In addition to providing an important leadership role, especially in the more rural areas, chiefs act as custodians of stool/skin land, can mobilise their people for developmental efforts and arbitrate in the resolution of local disputes. Although chiefs have no direct political authority, some are appointed by the Government or District Assemblies.</p>                                                                                                                                                                                                                                                                                              | The proposed project site falls under the Tumu Traditional Council that is a key stakeholders in the project.                                                                                                                                                                               |

#### 4.7 International Conventions

Ghana is a signatory to some of the international conventions that are relevant to the proposed project and it is imperative to analyse the project in light of the commitments made under such conventions. The relevant international conventions are summarised below.

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Ratification Date | Applicability to Proposed Project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | <p><b><u>United Nations Convention on Biological Diversity</u></b></p> <p>The three goals of the CBD are to promote the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources.</p> <p>The convention calls for the adoption of national strategies, plans and programmes for the conservation and sustainable use of biological diversity into their relevant sectoral and cross-sectional plans, programmes and policies. One of the tools that are prescribed for the management of biodiversity is an environmental assessment. Article 14 of the convention deals with impact assessment and minimization of adverse impacts.</p> | 29 August 1994    | <p>Ghana is a signatory to these international conventions which are also relevant to the proposed project. The proposed project has potential impacts on biodiversity and will have to implement appropriate climate change adaptation measures. Ghana, being a signatory of these conventions, will work towards the achievement of the respective goals of these conventions.</p> <p>The ESIA will identify endangered species in the project area and recommend appropriate mitigation measures for their protection and conservation.</p> |
| 2.  | <p><b><u>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)</u></b></p> <p>The objective of the Convention is to conserve wildlife and prevent international trade from threatening species with extinction.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 14 November 1975  | <p>Species such as rosewood, which is listed on CITES, could be affected by project activities such as land clearing.</p> <p>The ESIA will identify endangered species in the project area and recommend appropriate mitigation measures for their protection and conservation.</p>                                                                                                                                                                                                                                                            |
| 3.  | <p><b><u>United Nations Framework Convention on Climate Change (UNFCCC)</u></b></p> <p>The UNFCCC provides the basis for global action to protect the climate system for present and future generations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 06 September 1995 | <p>The SADP is a government agricultural initiative and is therefore bound by the requirements of the regulation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                          |

| No. | Legal Framework and Key Compliance Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ratification Date | Applicability to Proposed Project |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------|
|     | The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. |                   |                                   |

#### 4.8 African Development Bank Operational Safeguards

The African Development Bank (AfDB) has published Operational Safeguards (OSs) to guide the safe development of projects it is funding. The triggered policies are described in the **Table 4-2** below. The AfDB requirements are not inconsistent with the national requirements and therefore no implementation conflicts are foreseen.

**Table 4- 2: Operational Safeguards of the AfDB**

| No. | AfDB Operational Safeguard Policy        | Summary of core requirements                                                                                                                                                                                                                                                                                                                                                                                                                                             | Potential for Trigger under proposed project | Applicability to proposed project                                                                                                                                                                                                                                                       |
|-----|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | OS1– Environmental and social assessment | Borrowers or clients are responsible for conducting the environmental and social assessment (Strategic Environmental and Social Assessment, or SESA, or Environmental and Social Impact Assessment, or ESIA) and for developing, as an integral part of project documentation, an appropriate plan for managing possible impacts. It categorises proposed projects into categories 1, 2, 3, 4 and 5 based on the extent of adverse impacts anticipated from the project. | Triggered                                    | OS1 is triggered because SADP will be based on the development and rehabilitation of agriculture infrastructures, which may pose environmental and social risks. SADP risks will be managed throughout the implementation of mitigation measures prescribed in the site specific ESMPs. |

| No. | AfDB Operational Safeguard Policy                                                         | Summary of core requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Potential for Trigger under proposed project | Applicability to proposed project                                                                                                                                                                                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.  | OS2– Involuntary resettlement, land acquisition, population displacement and compensation | It relates to Bank-financed projects that cause the involuntary resettlement of people. It seeks to ensure that when people must be displaced they are treated fairly, equitably, and in a socially and culturally sensitive manner; that they receive compensation and resettlement assistance so that their standards of living, income-earning capacity, production levels and overall means of livelihood are improved; and that they share in the benefits of the project that involves their resettlement. | Triggered                                    | The project will not acquire lands since interventions will focus on only existing farmers and value chain actors. However, the project implementation could restrict locals or herders from accessing lands that are used as pasture lands.                                                                                                                                                                  |
| 3.  | OS3- Biodiversity, renewable resources and ecosystem services                             | This Operational Safeguard (OS) outlines the requirements for borrowers or clients to (i) identify and implement opportunities to conserve and sustainably use biodiversity and natural habitats, and (ii) observe, implement, and respond to requirements for the conservation and sustainable management of priority ecosystem services                                                                                                                                                                        | Triggered                                    | OS3 is triggered since the proposed interventions will involve extraction of natural resources including use of water, soils (e.g., commercial harvesting, agriculture, livestock).                                                                                                                                                                                                                           |
| 4.  | OS 4–Pollution prevention and control, hazardous materials and resource efficiency        | This OS outlines the main pollution prevention and control requirements for borrowers or clients to achieve high quality environmental performance, and efficient and sustainable use of natural resources, over the life of a project. It draws on and aligns Bank operations with existing international conventions and standards related to pollution, hazardous materials and waste, and related issues                                                                                                     | Triggered                                    | OS4 is triggered because potential environment and social impact due to emissions of pollutants and waste is anticipated during the construction phase. Likewise, agriculture development activities will involve the use of improved application of fertilizers and agro-chemicals, as well as result in the production of agriculture wastes. These will be managed as per measures prescribed in the ESMP. |

| No. | AfDB Operational Safeguard Policy        | Summary of core requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Potential for Trigger under proposed project | Applicability to proposed project                                                                  |
|-----|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------|
| 5.  | OS5–Labour conditions, health and safety | This OS outlines the main requirements for borrowers or clients to protect the rights of workers and provide for their basic needs. When the borrower or client intends to employ a workforce for a project, it develops and implements a human resources policy and procedures appropriate to the nature and size of the project, with the scale of the workforce in alignment with this OS and with applicable national laws. The OS requires the protection of the workforce through the institution of appropriate health and safety measures taking into account risks inherent in the particular sector and specific classes of hazards in the borrower’s work and does not support the use of child labour and forced labour | Triggered                                    | The Contractor shall comply with the Labour laws and Occupational Health and Safety Best Practice. |

## 5.0 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

Baseline conditions give the existing status of the environment in the area before the commencement of the proposed project. The information serves the purpose of a base reference against which the changes due to the implementation of the project are measured. The baseline conditions of the proposed project area are discussed in this chapter.

### 5.1 Project Location

#### 5.1.1 Direct influence area of the project

The immediate geographical area of influence of the project will be beneficiary communities, which have been identified based on the availability of vast land for commercial farming. **Table 5-1** describes the environmental and social conditions in these communities. Considering that the environmental and social characteristics are largely homogeneous, broader reference is made to information on the Sissala East Municipality, where the project communities are located.

**Table 5- 1: Environmental and social conditions in Potential Communities**

| MMDA         | POTENTIAL COMMUNITIES | BASELINE ENVIRONMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sissala East | Taffiasi              | <p><b>Topography:</b> The land is generally flat and undulating.</p> <p><b>Drainage:</b> Community is drained by Daalugre which is 120 metres from the community.</p> <p><b>Biodiversity:</b> The vegetation cover is mostly shrubs and grasses with trees such as shea. Some common fauna are ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato.</p> <p><b>Socioeconomic activities:</b> Charcoal production, shea butter processing, trading, hunting, sale of fire wood, farming, etc.</p> <p><b>Natural disasters:</b> Natural disasters are seasonal in nature, with bushfires occurring during the dry season and floods occurring usually after a heavy downpour mostly in the rainy season.</p>                                 |
|              | Chinchang             | <p><b>Topography:</b> The land is gently undulating with a few hilly areas.</p> <p><b>Drainage:</b> Community is drained by Yangibua (2km away), Nakariwara (3km away), Mukar (6km away).</p> <p><b>Biodiversity:</b> The vegetation is largely bushes and grasses, with some Shea trees mixed. Ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrels, bush rats, birds, sheep, cattle, and goats are examples of common fauna. Groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato are among the crops grown.</p> <p><b>Socioeconomic activities:</b> Farming, hunting and trading (shea butter processing, charcoal production, sale of fire wood) are the key economic activities.</p> <p><b>Natural disasters:</b> Natural disasters are seasonal in nature, with bushfires occurring during the dry season and floods occurring during the wet season.</p> |
|              | Navariwie             | <p><b>Topography:</b> The surface is flat and gently undulating.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

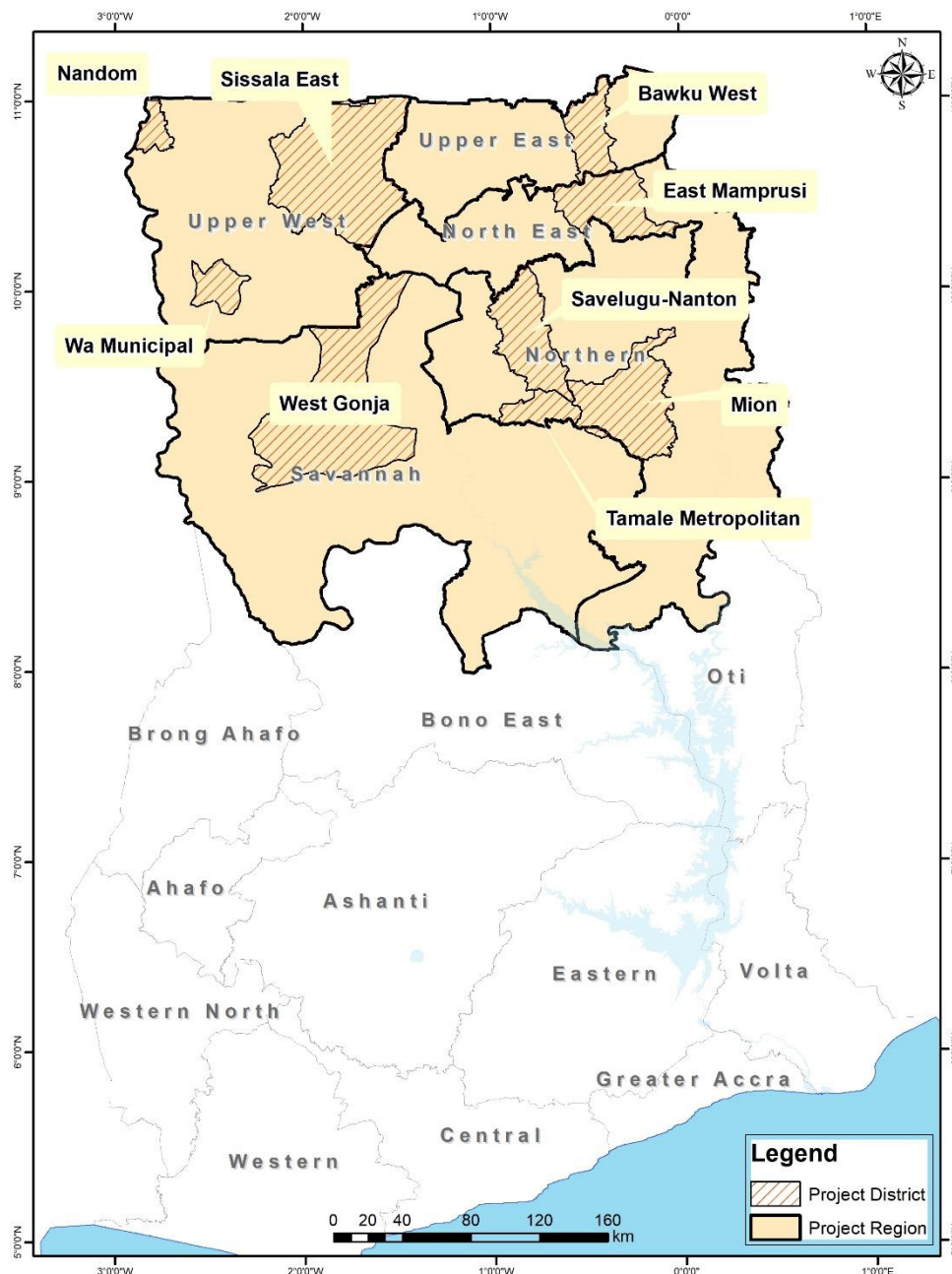
|  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |             | <p><b>Drainage:</b> The community is drained by Navariwiefuo (60 metres away), Chirike (1 mile away) and Bujanfuo (2 miles away)</p> <p><b>Biodiversity:</b> The vegetation consists primarily of bushes and grasses, with a few Shea trees interspersed. Ants, termites, earthworms, millipedes, dung beetles, centipedes, squirrels, bush rats, birds, sheep, cattle, and goats are examples of common fauna. Groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato are among the crops grown.</p> <p><b>Socioeconomic activities:</b> Farming and trading are important sectors of the economy (shea butter processing, charcoal production, sale of fire wood).</p> <p><b>Natural disasters:</b> Natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                                                                                                                          |
|  | Kong        | <p><b>Topography:</b> The landform is flat and undulating.</p> <p><b>Drainage:</b> The community's source of water are the Kong dugout which is 20 metres away, and Fuonaa, which is 2 miles away.</p> <p><b>Biodiversity:</b> The vegetation consists primarily of bushes and grasses, with a few shea trees interspersed. Ants, termites, earthworms, millipedes, dung beetles, centipedes, squirrels, bush rats, birds, sheep, cattle, and goats are examples of common fauna. Groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato are among the crops grown.</p> <p><b>Socioeconomic activities:</b> Farming and trading are the major economic activities (shea butter processing, Charcoal production, sale of fire wood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                                                 |
|  | Sakalu      | <p><b>Topography:</b> The landform is gently undulating.</p> <p><b>Drainage:</b> The community is drained by Bomboribua which is 250 metres away, Naprusi Paafiala which is 100 meters away, Gbefiasi (1 mile) and Bonsunfia (1 mile away).</p> <p><b>Biodiversity:</b> The vegetation consists primarily of bushes and grasses, with a few shea trees interspersed. Ants, termites, earthworms, millipedes, dung beetles, centipedes, squirrels, bush rats, birds, sheep, cattle, and goats are examples of common fauna. Groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato are among the crops grown.</p> <p><b>Socioeconomic activities:</b> Farming, hunting and trading (shea butter processing, charcoal production, sale of fire wood) are the key economic activities.</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p> |
|  | Wellembelle | <p><b>Topography:</b> The surface is flat and undulating with a few hilly areas.</p> <p><b>Drainage:</b> The sources of water are dugouts namely Wellembelle (700 meters away), Siri (4 kilometers away), Gbugu is 1 kilometer away, Fuochemi is 1 km, Chari is 2 kilometers, Laripuo is 1.5 kilometers, and Gbaala is 1 km far.</p> <p><b>Biodiversity:</b> The vegetation cover is mostly shrubs and grasses with trees such as Shea. Some common fauna are ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato.</p>                                                                                                                                                                                                                                                                                                     |

|  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |           | <p><b>Socioeconomic activities:</b> Farming, hunting and trading (shea butter processing, charcoal production, sale of fire wood) are the key economic activities.</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Challu    | <p><b>Topography:</b> The land is undulating and flat with some hilly areas</p> <p><b>Drainage:</b> Gilikomo, and Korijabia about 15km and 2.5km respectively from the community.</p> <p><b>Biodiversity:</b> The predominant vegetation is shrubs and grasses with trees such as Shea. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                                |
|  | Nabulo    | <p><b>Topography:</b> The land surface is mostly flat and undulating with a few hills.</p> <p><b>Drainage:</b> Lifuo, and Mipaali about 8 miles and 1 mile respectively from the community.</p> <p><b>Biodiversity:</b> The predominant vegetation is shrubs and grasses with trees such as shea. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season after heavy downpour.</p> |
|  | Nmanduonu | <p><b>Topography:</b> The area is generally flat and meandering, with a few hills.</p> <p><b>Drainage:</b> River Lipurun, and River Bubua about 1 mile and 3km away respectively from the community.</p> <p><b>Biodiversity:</b> The primary vegetation is shrubs and grasses with trees such as shea. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                 |
|  | Bugubelle | <p><b>Topography:</b> The surface is gently undulating and flat.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|  |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |          | <p><b>Drainage:</b> Waalifuo, and Gbooko about more than 10 km and 3km away respectively from the community.</p> <p><b>Biodiversity:</b> The main vegetation is shrubs and grasses with trees such as Shea. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Occurrence of bush fires usually after harvest in the dry season and flooding after a heavy downpour in the wet season.</p>                                                     |
|  | Pagvene  | <p><b>Topography:</b> The topography is generally undulating and flat.</p> <p><b>Drainage:</b> Pagvene about 2 miles away from the community.</p> <p><b>Biodiversity:</b> The main vegetation is shrubs and grasses. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. Crops cultivated are groundnut, sesame, vegetables, cowpea, yam, Bambara bean, and sweet potato</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, Charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Occurrence of bush fires usually after harvest in the dry season and flooding after a heavy downpour in the wet season.</p>                                            |
|  | Bamuse   | <p><b>Topography:</b> The surface is flat and meandering with a few hilly areas.</p> <p><b>Drainage:</b> Bamuse about 3 miles away from the community.</p> <p><b>Biodiversity:</b> The main vegetation cover is shrubs and grasses. Common fauna includes ants, termites, earth worms, millipedes, dung beetles, centipedes, squirrel, bush rat, birds, sheep, cattle, goats etc. crops cultivated are groundnut, sesame, vegetables, cowpea, yam, bambara bean, and sweet potato.</p> <p><b>Socioeconomic activities:</b> The key socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of fire wood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p> |
|  | Nirebere | <p><b>Topography:</b> The surface is generally flat with a few hilly areas.</p> <p><b>Drainage:</b> Nyirebere about a mile away from the community.</p> <p><b>Biodiversity:</b> The vegetation cover is predominantly shrubs and grasses. Some common fauna are ants, termites, earth worms, millipedes, dung beetles, centipedes, sheep, cattle, goats, squirrel, bush rat, birds etc.</p> <p><b>Socioeconomic activities:</b> The major socioeconomic activities in the community are farming and trading (shea butter processing, charcoal production, sale of firewood).</p> <p><b>Natural disasters:</b> Events of natural disasters are seasonal in nature with bushfires experienced in the dry season while floods are experienced in the rainy season.</p>                                                                                           |

### 5.1.2 Indirect influence area of the project: Sissala East Municipality

The Sissala East Municipality is located in the Upper West Region of Ghana, between the latitudes of 10.00° N and 11.00° N and longitude 1.30° W. The municipality is bounded on the east by the Kassena-Nankana and Builsa Districts, to the north by Burkina Faso, to the west by Sissala West District, to the South East by West Mamprusi District and to the South West by Wa East and Daffiama-Bussie-Issa Districts. The municipality has a total land area of 4,990 sq.km (**Figure 5-1**).



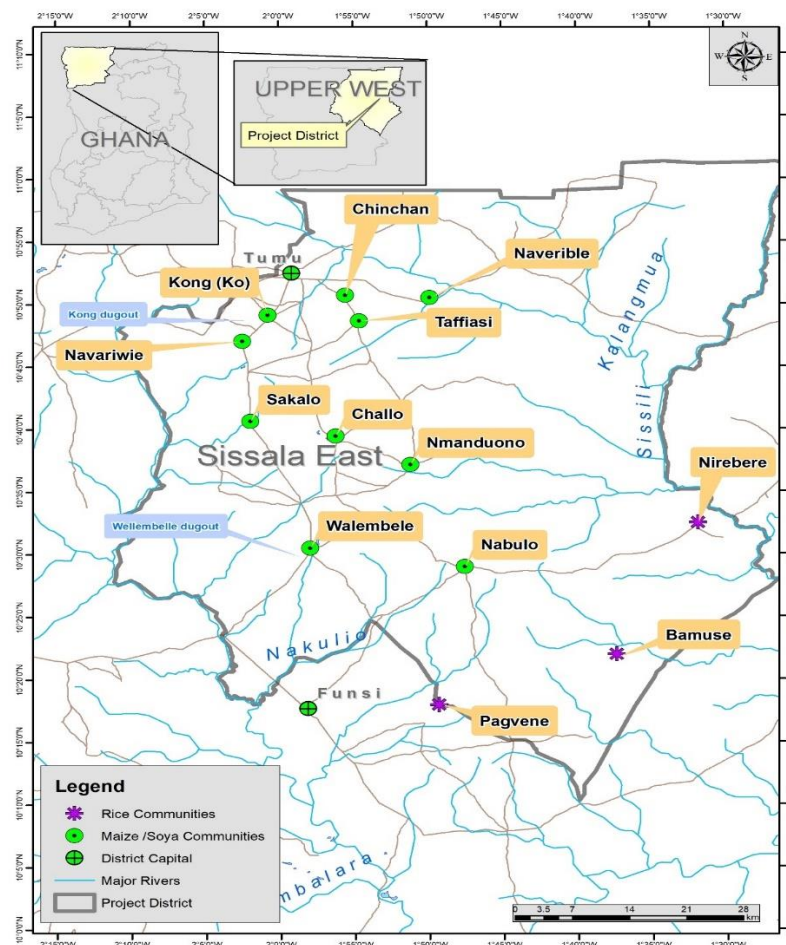
**Figure 5- 1: Map of Ghana showing the beneficiary districts including WMA**

## 5.2 Physical Environment

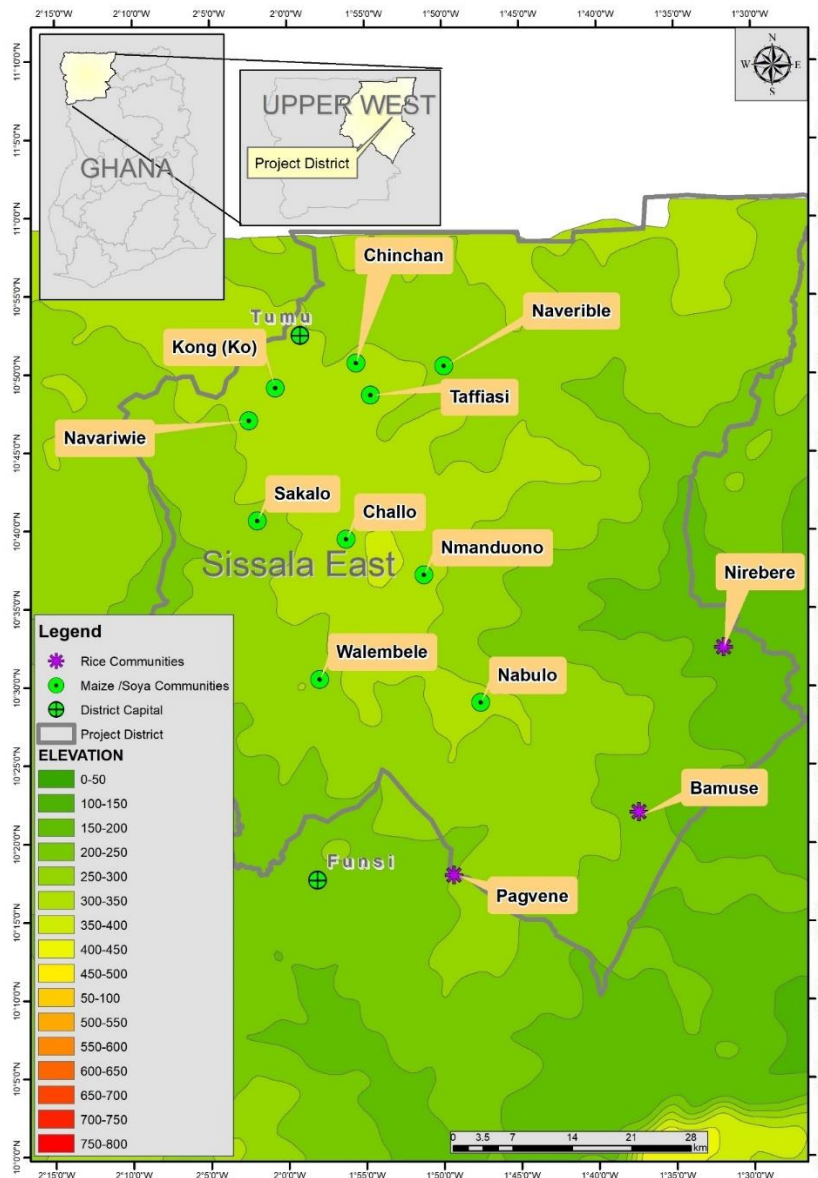
### 5.2.1 Topography and Drainage

The topography of the Sissala East Municipality can be characterized as gently undulating with altitudes of between 330 and 365m in the northern part descending to 220m and 290m in the Valley of the Sissili River. The municipality is mainly drained by the Sissili River and its tributaries flowing in the south-eastern direction to join the White Volta. This is coupled with several tributaries and other unnamed streams which are perennial in nature. Though they have potential for supporting the development of dams and dugouts, they are left bare. The flow of the Sissili River itself reduces to intermittent pools in the dry season. The constant drying of these rivers necessitate the drilling of boreholes to supplement the seasonal shortage of water.

Within 50m and 6km of the potential project communities, water sources include perennial streams and dugouts such as Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfuo, Fuonaa, Kong dam, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembele dam, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, and Nyirebere.



**Figure 5- 2: Drainage Map of the Sissala East Municipality**

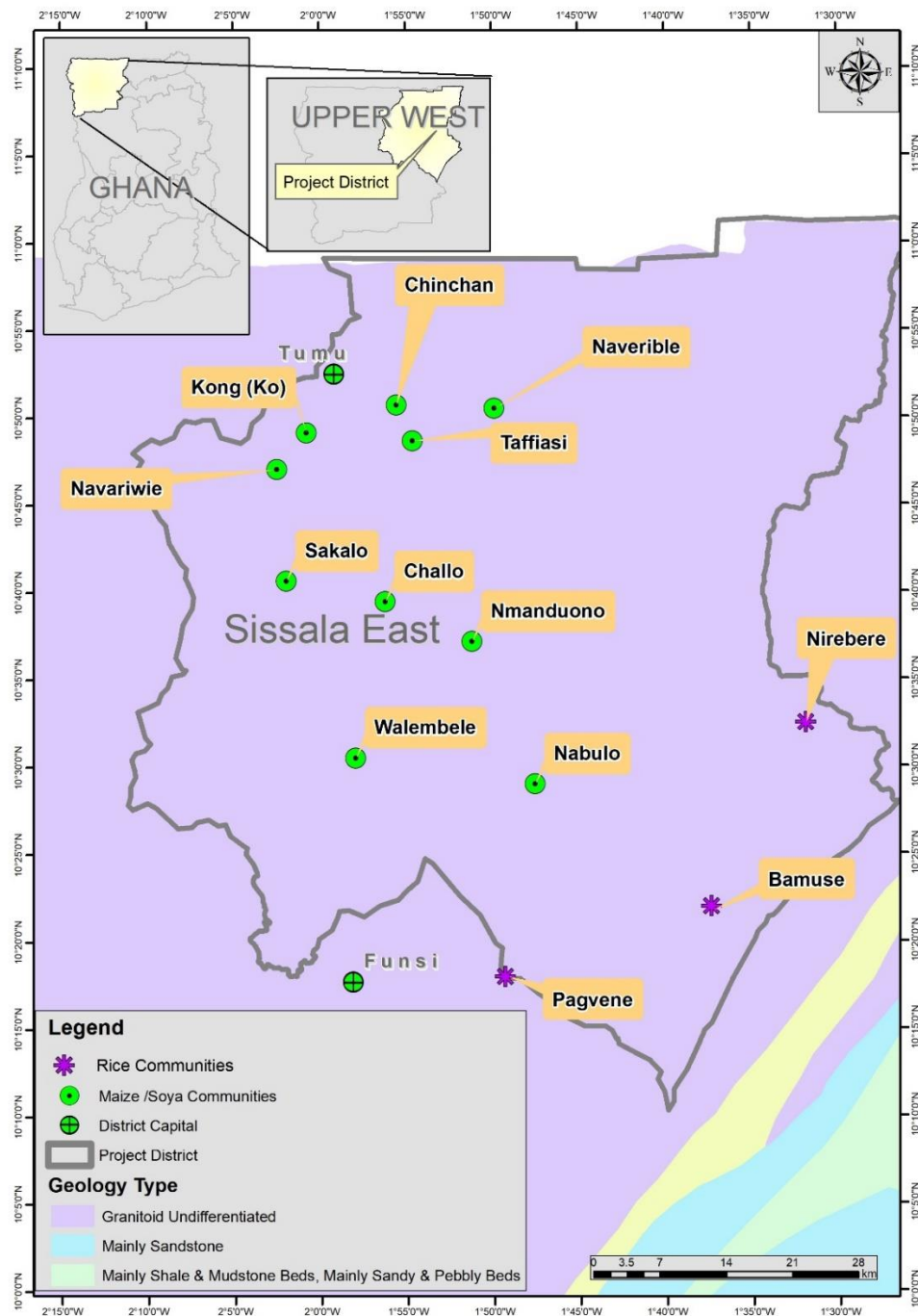


**Figure 5- 3: Elevation Map of the Sissala East Municipality**

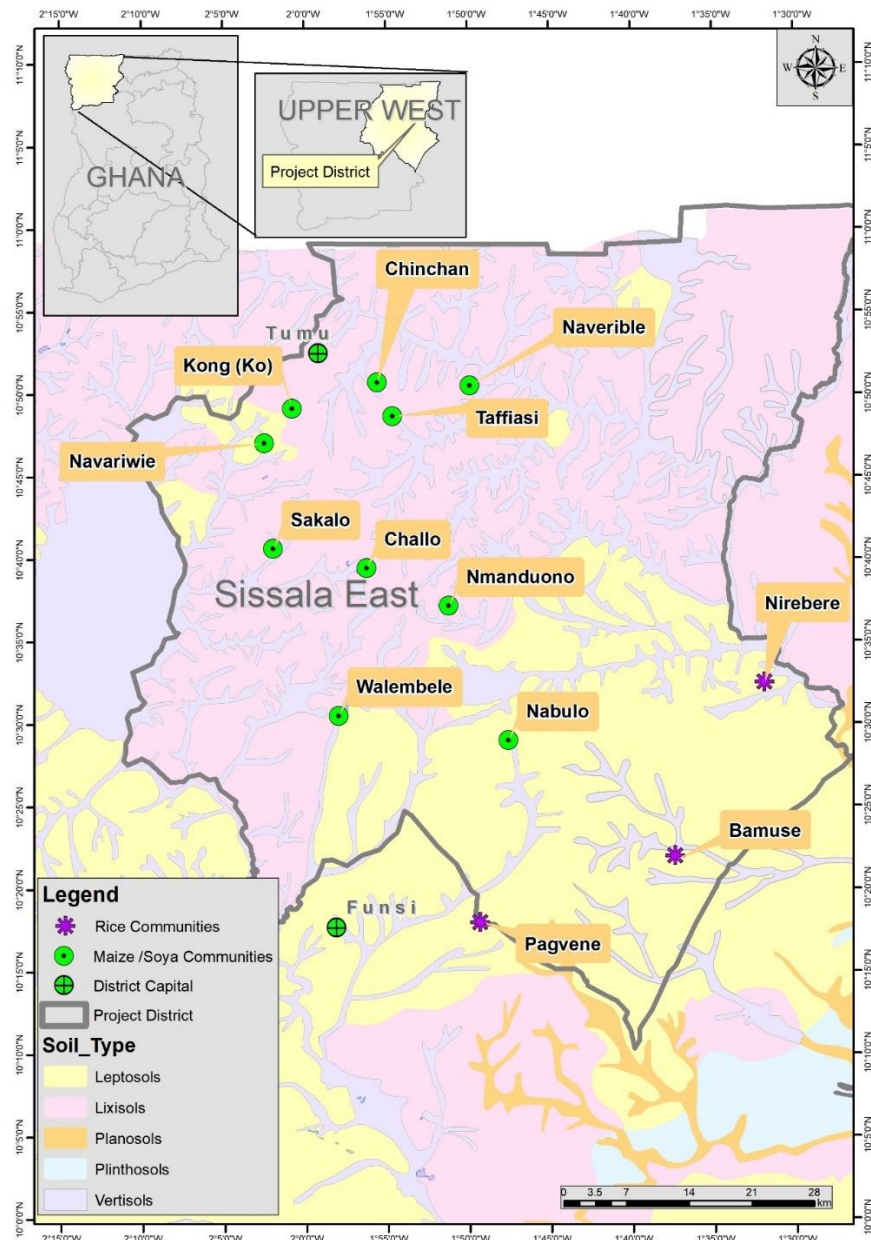
### 5.2.2 Geology and Soils

The Municipality of Sissala East is bound with fresh granitic and bromine rocks which weather fast as a result of low rainfall, high evaporation, and sparse vegetative cover to form soils of lesser depths rich in minerals for potential farming. The bromine and granitic geological formations are characterized by meta-sediments and meta-volcanic rock formations. The bromine formation has a 65% yielding underground water, while the granite has a 55% chance of yielding water. This type of geology provides the potential for underground water development.

The land has a variety of soils including Savannah Ochrosols, Tropical brown earth, and Terrace or Alluvial soils which support plant growth to various degrees. These soils are better suited for the cultivation of cereals and root tuber crops including millet, maize, sorghum, yam, and cash crop like cotton. They respond well to the application of organic manure and commercial fertilizers to give a high yield. With adequate rains and good farming practices, these soils have the potential of improving agriculture production.



**Figure 5- 4: Geology of the Sissala East Municipality**



**Figure 5- 5: Soil Map of the Sissala East Municipality**

### 5.2.3 Climate

The climatic condition of the municipality is tropical continental, similar to that of the northern portions of the country. The area's typical temperature fluctuates from a minimum of 23°C at night to a maximum of 42°C during the day, which is ideal for plant development. The average monthly temperature is between 21°C and 32°C. Before the rainy season in May, the highest monthly maximum temperature reaches 40°C, with the lowest minimum temperature falling to around 12°C in December when the Harmattan winds from the Sahara dry up the vegetation.

#### 5.2.4 Environmental Quality

The Navariwie community was chosen for environmental quality assessment out of the thirteen (13) potential communities because it has the largest land area suitable for cultivation of maize and soybeans.

##### Ambient Air Quality

The sampling and analysis of ambient particulate matter concentrations was done according to the ASTM Test Method D4096-17. Particulate matter was sampled for 24 hours using ARA N-FRM Air Sampler set to a flow rate of 16.7 L/min drawing air through the inlet onto a 47mm quartz filter for analysis. The quartz filter paper was stabilized for a minimum of 24 hours before and after sampling in a desiccator.

The ARA N-FRM air sampler is equipped with a RTP profiler, which uses a Plantower light-scattering sensor to provide real-time data for two size ranges approximating PM<sub>10</sub> and PM<sub>2.5</sub>. It shows trends during the sample run, supplementing the filter data. The fresh quartz filter paper was weighed before and after the 24-hour sampling period, and the difference in weight (W<sub>2</sub>-W<sub>1</sub>) used to calculate the concentration of the particulate matter in µg/m<sup>3</sup>.

The Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>) concentrations monitored at Navariwie Community were 15 µg/m<sup>3</sup> and 47 µg/m<sup>3</sup> which are within the Ghana Standard (GS 1239:2019) permissible values of 35 and 70 (µg/m<sup>3</sup>). The monitoring team did not observe much activities in the communities that could have significant influence on the air quality at the time of the assessment.

##### Ambient Noise

Noise measurements/recordings were taken with a High Precision TSI Quest Sound Level Meter, Model Type 1. The sound level meter has an in-built calibrator and was calibrated before each measurement/recordings were taken. The noise meter was calibrated at 114 dB (A) prior to the measurement. The following statistical indices was computed L<sub>max</sub>, L<sub>min</sub>, L<sub>Aeq</sub>, L<sub>10</sub>, L<sub>50</sub>, L<sub>90</sub>

The ambient noise levels (L<sub>EQ</sub> values) recorded were compared to their respective Ghana Standard (GS 1222:2018) and IFC guideline values. The daytime ambient noise level (dBA) for the project site (52.6 dBA) was below the GSA and IFC L<sub>EQ</sub> guideline values of 60 and 55 respectively. The night-time ambient noise level (dBA) for the project site (43.0 dBA) was also below the GSA and IFC L<sub>EQ</sub> guideline values of 55dBA and 70dba. **(Annex 6).**

##### Surface water quality

Water testing was done at the nearest water source, the Navariwie stream. The community relies mainly on the Navariwie stream for drinking, washing and farming.

The water source which could potentially be recipient of any pollution impact from the project was tested on the, 25<sup>th</sup> January 2022 at 11:15am. Parameters including Temperature, pH, TDS and Conductivity were measured in-situ using a field kit, Thermo Scientific EUTECH Handheld Meter Kit.

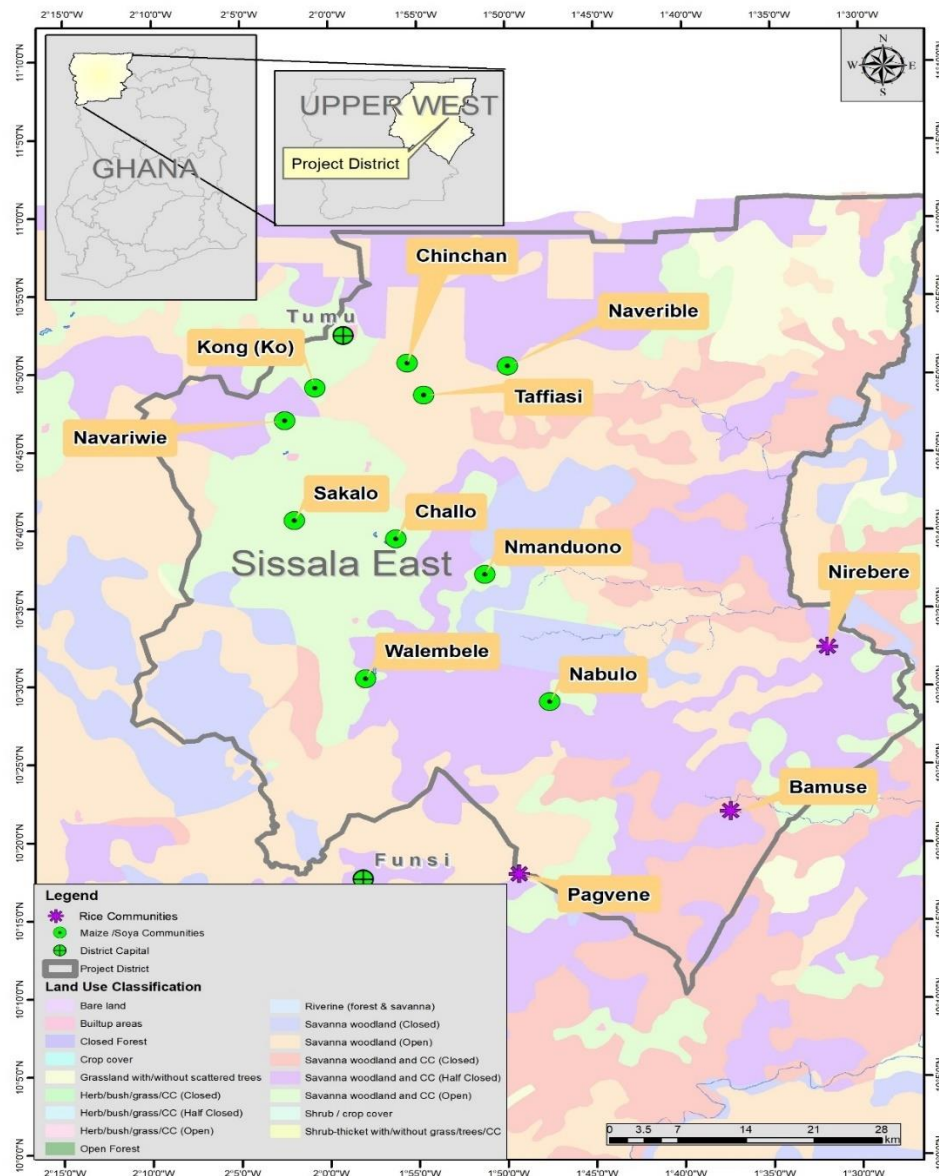
Parameters were within the WHO drinking water guidelines, showing that the quality of the Navariwie stream is generally good with pH of 6.45, conductivity of 133.3 µS/cm, and TDS of 71.63 **(Annex 6).**

### 5.3 Biological Environment

#### 5.3.1 Vegetation

Sissala East Municipality lies within the Guinea Savannah vegetation belt of the country. The vegetation consists of grasses with scattered fire-resistant trees like sheanut (*Vitellaria paradoxa*), baobab (*Adansonia digitata*), dawadawa (*Parkia biglobosa*) and acacia (**Figure 5-5**).

The shorter shrubs and grasses provide fodder for livestock. This has resulted in high influx of Fulani into the municipality. The Shea nut tree is one of the great economic assets of the area. The forest reserves cover a total area of about 267 sq. km and encourage a rich stock of mammalian wildlife. This includes the following: Primates (Baboons and monkeys), Rodents (grasscutter, rabbits, and various species of rats and mice), Carnivora (Civets), Edentates (Aardvark/ant-deer), Elephants (Savannah elephants/*Loxodonta* African), and Artiodactyls (wild pigs, dwarf buffalo, roan antelope).



**Figure 5- 6: Land cover map of the Sissala East Municipality**

## 5.4 Socio-Economic Environment

### 5.4.1 Governance Structure

The political structure of the Assembly places the Metropolitan/Municipal/District Assembly as the main institution about which every other institution revolves. The current local government system has a three (3) tier structure at the District level, which is made up of the following:

- (i) District Assembly;
- (ii) Town /Area Councils; and
- (iii) Unit Committees

The administrative structure of the Sissala East Municipality is made up of the Municipal Assembly and its secretariat, departments of the Assembly, 1 Urban Council (Tumu) and 4 zonal councils (Bujan, Wellembele, Sakai and Nabulo). The Municipal Assembly is made up of 28 Assembly men and 3 Assembly women. It is the highest decision-making body and is responsible for the overall development of the municipality.

The assembly also has a Presiding Member who presides over meetings of the Assembly and is in charge of complaints and public relations. The assembly has a 9-member Executive Committee which performs/exercises its executive and coordinating functions. To facilitate the discharge of these important responsibilities, the Municipal Development Planning Coordinating Unit (MPCU) was put in place and made operational. The Assembly performs its functions through the Executive Committee and a network of sub-committees. The executive functions are performed by the Executive Committee which is presided over by the District Chief Executive (DCE) and consists of not more than one-third of the total number of members of the Assembly, excluding the Presiding Member. It exercises its executive and co-coordinating functions of the Assembly through the five sub-committees that collate and deliberate on issues relevant to their functional areas. The sub-committees are as follow:

- Development Planning sub-committee
- Social Services sub-committee
- Works sub-committee
- Finance and Administration sub-committee
- Justice and Security sub-committee

In the Sissala East Municipality and at the apex of the traditional setup are four paramountcy namely the Tumu, Banu, Bawiesible, and the Wellembele Paramountcy, which have divisions. The divisions under Tumu paramountcy include Pieng, Bujan, Tafiasi, Sakai, Challu, Kwapun, Santijan, Bawiesibelle paramountcy includes, Nabulo, Gwosi, Banu paramountcy includes, Kasana, Wuru, Pina, Kunchogo, Banu, Bassisan and the like. The divisions under Wellembele Paramountcy include Bugubelle, Kulfoo, Nmanduanu, and Jijen. There is a close collaboration between these traditional setups and the formal system in terms of policy making, conflict resolution and the implementation of development programmes and projects. The traditional institutions are key stakeholders in development in the district as they in charge of the allocation of land for development projects and equally take part in the monitoring process.

#### **5.4.2 Demography**

The total population of the municipality, according to the 2021 Population and Housing Census, is 80,619 made up of 39,868 (49.5%) males and 40,751 (50.5%) females. The population density is 16.2 persons per sqkm with a total of 19,262 households and an average household size of 4 persons per household which is lower than the regional average of 4.6.

The municipality is predominantly rural with 76.7% rural population and 23.3% living in urban areas. The composition and structure of households in Sissala East Municipality remain basically traditional, where most of these households are headed by males. 67.0% of the houses are built with mud bricks with a few of them plastered with cement mortar. Even in the capital, these types of houses are found in many

places. The houses are either roofed with aluminum or grass thatches. The thatched houses are more prevalent in rural settlements and are more susceptible to fire during the dry season.

The municipality is made up of different cultures and these dynamic cultures have been handed over to the present generation by their forefathers through experience and reflection in an attempt to fashion and harmonize co-existence with the environment. There are five main ethnic groups comprising the Sissala's (88.0%), Kasenas (5.0%), Dagabas (3.0%), Moshies (2.0%) and others (2.0%). Moslems account for 81.0% of the population, Catholics for 10.0%, Traditionalists for 5.0%, and others for roughly 4.0%. Regardless of the numerous religious organizations, there are friendly relations between them.

#### **5.4.3 Education and Literacy**

The municipality has a total of One Hundred and seventy (170) educational institutions comprising of Fifty-Seven (57) Kindergarten Schools, Sixty (66) Primary Schools, Fifty (50) Junior High Schools, One (1) Technical/ Vocational School and four (3) Senior High Schools. Though this appears to be high, there are some communities in the area that do not have the required educational facilities. Currently more than 95% of the School-Age Population can now access primary education within 4 -5km distance. However, the literacy rate in the municipality is low at a rate of 59.0% according to UNICEF (2009).

#### **5.4.4 Economic Activities**

The municipality is mainly agrarian with the majority (69%) of the people engaged in the cultivation of cash and staple food crops. Recently most farmers have gone into industrial tree plantations such as cashew and mango as well as cotton cultivation. Commerce is one of the major sources of employment for the local economy employing 15% of the population. The commercial activities are predominantly buying and selling of agricultural produce, consumer goods and second-hand items. Livestock rearing involving cattle, sheep, goats and rural poultry is another main occupation engaged by farmers.

#### **5.4.5 Utilities and Services**

##### Energy

The municipality of Sissala East has the following varying sources of energy for various economic, domestic and industrial activities. The municipality uses 0.82 Kt of charcoal representing 8.41% of the regional total use of Charcoal, 26.50Kt of firewood representing 9.62% of firewood used in the region, 0.008Kt of Kerosene representing 9.14% of regional use of kerosene. The municipality consumes 20.96GWh of electricity yearly which is 10.75% with an access rate of 91.1%. The area has 2 LPG outlets to provide energy for the inhabitants with a quantity of 0.02Kt which is a regional share of 4.12% of LPG consumption.

##### Water

The municipality has three (3) Small Town Water Supply Systems, two hundred and thirty-one (231) number of boreholes with only one hundred and forty-nine (149) functional boreholes and twenty-two (22) hand dug wells without pumps and four (4) hand dug wells with pumps. The other major sources of

water supply for domestic, commercial, agricultural and industrial use are dams and dugouts located within communities.

#### Sanitation and Waste Management

The sanitation situation of the municipality is quite poor due to the lack of sanitation infrastructure. Indiscriminate defecation is a widespread occurrence, resulting in water and sanitation-related ailments. In addition, indiscriminate defecation is linked to a negative social attitude regarding having sanitation facilities within complexes, a lack of building regulatory enforcement, and insufficient sanitation facility planning and financing. Just about 15% of the municipality's population have access to sanitation facilities.

#### Communication

Out of the population 12 years and older, 48.0% (27.5% males and 20.5% females) own mobile phones. Also, 13.4% of the population has access to the internet and the proportion of males (9.1%) among users of the internet facility is more than females (4.3%).

#### **5.4.6 Health**

The municipality's health infrastructure consists of a government hospital, seven (7) Health Centres (HC), twenty-four (24) functional CHPS zones (4 without compound), 1 Mother/Child Health and Family Planning (MCH/FP) Clinic, one (1) private clinic, one (1) maternity home, and twelve (12) Community Nutrition Centres that are dysfunctional.

##### **List of Health Facilities in Sissala East Municipality**

|                                                  |     |
|--------------------------------------------------|-----|
| Number of Sub districts                          | 7   |
| Number of communities                            | 62  |
| Number of outreach sites                         | 100 |
| Number of Nutrition Centres ( All Dysfunctional) | 12  |
| Number of Hospitals                              | 1   |
| No. of functional CHPS zone                      | 30  |
| Modern Private Hospital                          | 1   |
| Private Maternity Home                           | 1   |

#### **5.4.7 Transportation**

The municipality has about 258.8 km of trunk roads, with about 226.14 km of the road being feeder roads. Accessibility becomes difficult, especially during rainy season as a result of the unpaved nature of some of the roads. The municipality has a major problem of poor road infrastructure. This affects the socio-economic development of most communities such as Gwosi, Santijan and Bawiesibelle which are almost cut off from the rest of the municipality during the peak rainy season.

#### **5.4.8 Land Ownership/Tenure**

Land ownership follows a patrilineal system with regards to land inheritance. The type of land tenure system practised in the municipality is where the allodial title to the land is vested in the Tindana or earth priest. The tindamba is in charge of the customary land management of the municipality. They enforce the rules binding land acquisition, allocate land rights and arbitrate conflicts arising therein. Though traditionally, tindamba is the sole authority responsible for land administration, the practical management of land is done by family heads. The family heads ensure that every family member has access to land and that disputes are settled and these are usually the most senior male members of the family.

Where royal land is involved, as in the case of chieftains, land and right to chieftaincy may be passed on from a father to his sons, who are wards of the father's brother on the understanding that the right to the land and chieftaincy should rotate among the sons of the father and the father's brother. Whoever has control over the land has right to the land and any resources it produces.

In traditional civilization, land ownership is usually recognized through communal acknowledgement and observation, or by the ruling traditional elder. Neither deeds nor documents, nor lawyers, are frequently involved. The presence of documents or paperwork usually suggests a previous land dispute that was resolved through the legal system. When a problem arises, the customary method of resolving it is to have an elder mediate. This method, however, is most effective when both sides respect the traditional elder. Local politicians are frequently called to mediate when one or both sides lack faith in the traditional elder. Land conflicts can also be resolved through the courts, but they are expensive.

A person or a group of people can buy land for construction, farming and other purposes from chiefs and family leaders.

## **6.0 POTENTIAL ENVIRONMENTAL AND SOCIAL ISSUES AND IMPACTS**

### **6.1 Project Area of Influence**

The ESIA gives an identification, qualitative assessment and classification of potential environmental and social impacts and their respective management options based on the general project design concepts. The SADP will have both positive and negative social, economic and environmental impacts at different levels.

### **6.2 Geographical area of influence**

The immediate geographical area of influence will be the 11 beneficiary communities which were selected based on their proximity to vast agricultural land and existing commercial farms or agricultural establishments.

### **6.3 Environmentally sensitive areas to be influenced**

The project area is considered an environmentally sensitive area according to the list of Environmentally Sensitive Areas of the Environmental Assessment Regulations 1999 (LI 1652), Schedule 5 (Regulation 30 (2)) – No. 6 and 7. The dry climatic conditions make the area fire prone. Also, low-lying areas are prone to flooding during the wet season (see **Annex 2**).

### **6.4 Community influence and vulnerable groups**

Communities in proximity to commercial farms or agricultural establishments may be affected by construction activities especially construction or expansion of infrastructure such as warehouses, hatcheries, etc.

Vulnerable groups are those at risk of becoming more vulnerable due to impacts from project implementation. These vulnerable people include, but not limited to:

- disabled persons, whether mentally or physically challenged;
- the elderly, usually from 70 years and above;
- very sick and or physically weak individuals;
- people without formal land rights;
- migrants/settlers;
- women; and
- children.

### **6.5 Institutional Influence**

The major institutions to be influenced or involved in the proposed project include:

- Ministry of Food and Agriculture;

- Project Coordinating Unit;
- Water Resources Commission;
- Lands Commission;
- Environmental Protection Agency;
- Regional Coordinating Council;
- Metropolitan Assembly;
- Fire Service; and
- NADMO.

## **6.6 Criteria of Impact Evaluation**

### **6.6.1 Duration of the Impact**

- A temporary impact can last days, weeks or months, but must be associated with the notion of reversibility.
- A permanent impact is often irreversible. It is observed permanently or may last for a very long term.

### **6.6.2 Extent of the Impact**

- The extent is regional if an impact on a component is felt over a vast territory or affects a large portion of its population.
- The extent is local if the impact is felt on a limited portion of the zone of study or by a small group of its population.
- The extent is site-specific if the impact is felt in a small and well defined space or by only some individuals.

### **6.6.3 Intensity of the Impact**

- The intensity of an impact is qualified as strong when it is linked to very significant modifications of a component.
- An impact is considered of average intensity when it generates perceptible disturbance in the use of a component or of its characteristics, but not in a way to reduce them completely and irreversible.
- A weak intensity is associated with an impact generating only weak modifications to the component considered, without putting at risk some its utilization or its characteristics.

### **6.6.4 Impact severity**

- A 'negligible or nil impact' or an impact of negligible significance is where a resource or receptor will not be affected in any way by a particular activity, or the predicted effect is deemed to be imperceptible or is indistinguishable from natural background levels.
- A 'minor impact' or an impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small and well within accepted standards, and/or the receptor is of low sensitivity/value. In such instances, standard construction/ operational practices can address such impacts.

- A 'moderate impact' or an impact of moderate significance is where an effect will be within accepted limits and standards. Moderate impacts may cover a broad range, from a threshold below which the impact is minor, up to a level that might be just short of breaching an established (legal) limit. In such cases, standard construction practices can take care of these impacts but mitigation measures may also be required.
- A 'major impact' or an impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. In such cases, alternatives are required to address such impacts otherwise mitigation measures should be adopted with strict monitoring protocols.

The above classification is largely subjective and may be overruled by new site-specific issues or information and detailed project activities not captured in this report.

## **6.7 Potential Positive Impacts**

The significant positive impacts of the proposed project are outlined as follows:

- Creation of job opportunities;
- Increased commerce and boost to local economy;
- Food security and risk reduction;
- Adoption of good agricultural practices;
- Technology transfer
- Save the Government of Ghana from importing poultry products as well as cereals and thereby save foreign exchange for Ghana
- Availability of poultry waste which can be used as organic manure on the maize and cereal farms

### **6.7.1 Creation of job opportunities**

Job opportunities for skilled, semi-skilled and unskilled labour will be created at the construction and operation phases as locals, including women, will be recruited for short-term and long-term jobs.

During construction of various agricultural value chain support infrastructure (assembly/construction of semi-industrial units, construction of warehouses, hatcheries etc.), labourers and piece workers will be engaged. The presence of workers will create an opportunity for food vendors, shop owners and other business operators in the communities to make some income. At the operation phase, there will be increase in the number of agricultural jobs leading to income generation and poverty reduction.

### **6.7.2 Increased commerce and boost to local economy**

Agricultural productivity will increase quantitatively due to increased access to mechanization services by crop and poultry farmers. This will result in higher revenue for players within the value chain such as farmers, input suppliers, transport operators, feed millers etc. Also, the project will improve and facilitate establishment of local services for marketing, processing, quality control services and development of new investment opportunities.

### **6.7.3 Food security and risk reduction**

Increase in production capacity coupled with availability of storage facilities will make produce available all year round and improve reliance on local agricultural produce. This will reduce the importation of agricultural produce across borders and improve food security.

### **6.7.4 Adoption of good agricultural practices**

The proposed project will involve the community and the local stakeholders throughout the project cycle equipping them with knowledge and skills in agricultural practices. The project will present the local stakeholders with a learning opportunity on good practices, such as climate smart agriculture, efficient water management, fertilizer application, among others leading to reduction in losses and better pest and disease management.

### **6.7.5 Technology transfer**

Farmers will be exposed to new technologies for geomapping, crop and poultry management, pest and disease control, processing etc. that were otherwise not known to them. For instance, applications such as the RiceAdvice decision support; will provide farmers guidelines for specific field conditions via smart phones. For pest and disease control, technologies that counter threats from parasitic striga, health-threatening aflatoxins and the invasion by Fall Army Worm will be made available to farmers. Facilitation of farmer access to mechanical and motorized shellers, threshers, improved seed variety and breeds, modern incubation and hatcheries, mechanized plucking and veterinary support will all increase productivity of farmers and increase their savings.

### **6.7.6 Availability of poultry waste which can be used as organic manure on the maize and cereal farms**

Increased production in the poultry sector can help address the challenge of limited access to inorganic fertilizer. Farmers can use their poultry waste to create organic manure, which is environmentally friendly, in appreciable quantities to be distributed amongst farmers within the district to augment the distribution of inorganic fertilizers within the savannah regions.

## **6.8 Major and Moderate Negative Impacts**

The environmental impacts of the project have been grouped as major and moderate impacts based on their significance. Also, impacts have been considered at the various phases of the project i.e. preparatory, construction and operation. The major and moderate adverse impacts are described below and in **Table 6-1**:

### Preparatory phase

- **Land related disputes** - Acquisition of lands by farmers without following due process could result in land-related disputes
- **Impact on livelihoods** - The project activities could restrict locals access to lands that were otherwise used as pasture areas. There could also be loss of economic trees such as shea and dawadawa which provides a livelihood for some locals especially women who pick and sell them.
- **Destruction of vegetation** - Site clearing will lead to the destruction of some common vegetation and a few trees.
- **Flooding** - The project implementation could be adversely affected by events of flood from torrential rainfall in the wet season especially in low-lying areas affecting properties and lives.
- 

### Construction phase

- **Soil degradation** – Levelling, as part of land preparation, and excavation for foundation of structures such as sheds and warehouses could lead to soil erosion and creation of gullies through runoff especially in the rainy season. Also, oil spillages from the maintenance of construction equipment and vehicles could contaminate soils and affect flora and soil fauna
- **Air pollution** – Levelling of land and transport of materials on untarred roads will lead to emission of particulate matter i.e. dust and fumes and adversely affect air quality, especially in the dry season
- **Water pollution** – Disposal of domestic waste from construction workers and food vendors and deposition of sediment, waste oil, fertilizer and pesticides via runoff into nearby water bodies will reduce the quality of water and could also smother some fishes and benthic organisms.
- **Noise and vibration** – Generation of noise and vibration beyond acceptable limits from operation of construction equipment, movement of haulage vehicles and tooting of horns could be a nuisance to residents of nearby communities and other sensitize organisms.
- **Waste generation and disposal** - Clearance of vegetation and levelling of land at project site will generate vegetative waste and excavated spoil. Other wastes such as construction debris, pieces of steel/metal, packaging materials, plastic pieces, human waste etc. if not disposed properly could clog drains, produce foul smell and facilitate the outbreak of sanitary related diseases such as cholera
- **Inefficient waste management** - Inefficient waste management during construction, operation and maintenance leading to excess consumption of materials, generation of wastes/emissions, pollution of soils and water.
- **Occupational health and safety** – Construction workers could be exposed to workplace and traffic-related accidents/incidents as well as animal/insect threat/bites during land preparation, civil works and transportation of materials or persons.
- **Poor labour working conditions** - Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions. Also, the absence of welfare facilities like toilets, sheds could affect their health or lead to indiscriminate defecation.
- **Traffic management** - Transport of materials and equipment to and from the project site through communities and towns raises traffic/public safety concerns. Broken-down, inappropriately parked or slow-moving haulage/construction trucks could lead to road accidents and traffic congestion especially on busy roads.

- **Fire outbreak** - Fire outbreaks from negligence of workers or the public burning refuse, game hunting and workers not properly extinguishing stubs of cigarette. These fires could spread causing injuries to persons and destruction of property.
- **Gender based violence** - Presence of workers and increase in incidents of rape, defilement and GBV
- **Public health issues** - Pollution of local water bodies will adversely affect the health of users. Sexual relations between workers and locals may bring about increase in sexually transmitted diseases including HIV/AIDs. Interactions between workers and locals could also lead to the spread of COVID-19.
- **Security concerns** - Violent behaviour and confrontations between workers and locals. Workers who are deemed to be financially sound could be victims of theft and burglary. Potential conflict over sexual affairs, child labour, drunk driving, accidents and destruction of property.

#### Operation phase

- **Soil erosion** - Leaving farmlands bare especially after harvesting could expose the soil to wind erosion from the strong winds in the dry season
- **Air Pollution** – Operation of equipment and vehicles will generate fumes that adversely affect the air quality. Also, haulage of products and inputs such as fertilizers, pesticides, seeds especially on untarred routes to and from farms or agricultural establishments will generate dust and fumes.
- **Pollution of Soils and Water** – Wastes, workforce sewage effluent, as well as runoff from cultivated land (containing fertilizers, pesticides and herbicides etc.) could pollute surface water, reduce its quality and make it unsuitable for use
- **Odours** - Odours associated with poultry and waste may have nuisance value for nearby receptors.
- **Noise and Vibration** - Noise and vibration from operation of processing equipment, equipment maintenance, movement of haulage vehicles, tooting of horns and noise from the poultry birds could be a nuisance to persons within the project community or nearby communities
- **Waste generation and disposal** - Improper disposal of vegetative waste from weeding, harvests, domestic waste from workers and effluent from installations could create unsightly scenes and aid in the production of vermin. Also, it could serve as breeding grounds for disease causing vectors like mosquitoes, houseflies etc.
- **Inefficient waste management** - Inefficient waste management during operation and maintenance leading to excess consumption of materials, generation of wastes/emissions, pollution of soils and water.
- **Occupational health and safety** - Workplace and traffic accidents/incidents and animal/insect threat/bites. Incidence of transmission of H1NI virus from poultry to the workforce
- **Poor labour working conditions** - Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions.
- **Traffic management** - Haulage of produce, inputs and equipment to and from farms through communities raises traffic/public safety concerns. Broken-down, inappropriately parked or slow-moving haulage trucks could lead to road accidents and traffic congestion especially on busy roads.
- **Fire outbreak** - Fire outbreaks from negligence of workers or the public burning refuse, game hunting and not properly extinguishing stubs of cigarette. These fires could spread causing injuries to persons and destruction of property.

- **Gender based violence** - Presence of workers and increase in incidents of rape, defilement and GBV
- **Public health issues** - Pollution of local water bodies will adversely affect the health of users. Sexual relations between workers and locals may bring about increase in sexually transmitted diseases including HIV/AIDs. Interactions between workers and locals could also lead to the spread of COVID-19. There is the potential for the transmission of H1N1 virus from poultry to humans especially workers handling birds
- **Snake bite risks** – Women and any other persons picking dawadawa and shea fruits could be exposed to snakebites resulting in hospitalization or fatality.
- **Security concerns** - Violent behaviour and confrontations between workers and locals as a result of sexual affairs, child labour, drunk driving, accidents and destruction of property. Workers who are deemed to be financially sound could be victims of theft and burglary.

**Table 6- 1: Major and moderate Adverse Impacts of the Subproject in the Sissala East Municipality**

| No. | Project Component | Description                                                               | Possible project area/ activity with potential E&S risks                                                                                                                                                                                                                                                                                                                                                                                                                  | Relevant OS                                                       | Anticipated issues/ risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----|-------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | C1-1              | Commercial Production of Maize and Soybean under Conservation Agriculture | <ul style="list-style-type: none"> <li>• Clearing of vegetation as part of land preparation</li> <li>• Civil works during development of water management systems e.g. dams, dugouts</li> <li>• Civil works e.g. rehabilitation/expansion of sheds, storage etc.</li> <li>• Equipment purchases and usage e.g. harvesters etc.</li> <li>• Haulage of inputs and produce</li> <li>• Handling and storage of produce</li> <li>• Hiring and management of workers</li> </ul> | <ul style="list-style-type: none"> <li>• 1, 2, 3, 4, 5</li> </ul> | <ul style="list-style-type: none"> <li>• Loss of vegetation and impact on natural habitats</li> <li>• Loss of economic trees (Shea, Dawadawa, etc)</li> <li>• Occupational Health and Safety issues (including COVID-19 infections)</li> <li>• Waste generation (including solid, liquid and hazardous waste)</li> <li>• Noise pollution</li> <li>• Air pollution (including dust, fumes etc.)</li> <li>• Bushfires</li> <li>• Traffic management issues along haulage routes</li> <li>• Potential surface water contamination</li> <li>• Potential produce contamination</li> <li>• Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH)</li> <li>• Women and vulnerable individuals or groups</li> <li>• Grievance from workers with respect to labour and working conditions</li> <li>• Potential conflicts between farmers and herdsmen over animal grazing fields</li> </ul> |

| No. | Project Component | Description                                                       | Possible project area/ activity with potential E&S risks                                                                                                                                                                                                                                                                                                                                                                    | Relevant OS                                                       | Anticipated issues/ risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|-------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | C1-2              | Promotion of Small and Medium Scale Commercial Poultry Production | <ul style="list-style-type: none"> <li>• Clearing of vegetation as part of land preparation</li> <li>• Minimum civil works e.g. rehabilitation/expansion of hatchery, storage etc.</li> <li>• Small equipment purchases and usage e.g. hatchers, incubators, brooders/heaters, egg transfer units, rack washers, dressing machine etc.</li> <li>• Hiring and management of workers</li> <li>• Operations of SMEs</li> </ul> | <ul style="list-style-type: none"> <li>• 1, 2, 3, 4, 5</li> </ul> | <ul style="list-style-type: none"> <li>• Loss of vegetation and impact on natural habitats</li> <li>• Occupational Health and Safety issues (including COVID-19 infections)</li> <li>• Waste generation (including solid, liquid and hazardous waste)</li> <li>• Noise pollution</li> <li>• Air pollution (including dust, fumes etc.)</li> <li>• Potential water contamination</li> <li>• Workers' grievances</li> <li>• Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH)</li> <li>• Women and vulnerable individuals or groups excluded from project benefits</li> <li>• Potential elite capture</li> <li>• Grievance from workers with respect to labour and working conditions</li> <li>• Odour from the poultry operations</li> </ul> |
| 3   | C2-1              | Value Addition and SME Development                                | <ul style="list-style-type: none"> <li>• Civil works e.g. rehabilitation/expansion of sheds, storage, cold stores etc.</li> <li>• Promotion of packaging, new distribution networks for poultry</li> </ul>                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• 1, 3, 4, 5</li> </ul>    | <ul style="list-style-type: none"> <li>• Occupational Health and Safety issues (including COVID-19 infections)</li> <li>• Waste generation (including solid, liquid and hazardous waste)</li> <li>• Noise pollution</li> <li>• Air pollution (including dust, fumes etc.)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| No. | Project Component | Description                                     | Possible project area/ activity with potential E&S risks                                                                                                                                                                      | Relevant OS                                                  | Anticipated issues/ risks                                                                                                                                                                                                                                     |
|-----|-------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                   |                                                 | products, transport services, new agro-input delivery systems <ul style="list-style-type: none"> <li>Increased feed processing at feed mills</li> <li>Hiring and management of workers</li> <li>Operations of SMEs</li> </ul> |                                                              | <ul style="list-style-type: none"> <li>Traffic management along distribution corridors</li> <li>Potential water contamination</li> <li>Workers' grievances</li> <li>Elite capture</li> </ul>                                                                  |
| 4   | C2-2              | Youth/Women Empowerment and Nutrition           | <ul style="list-style-type: none"> <li>Production and processing of shea, dawadawa, mango and cashew</li> <li>Small equipment purchases</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>1, 3, 4, 5</li> </ul> | <ul style="list-style-type: none"> <li>Occupational Health and Safety issues (including COVID-19 infections)</li> <li>Snake bites from picking shea</li> <li>Waste generation (including solid, liquid and hazardous waste)</li> <li>Elite capture</li> </ul> |
| 5   | C3-1              | Knowledge Management, Monitoring and Evaluation | <ul style="list-style-type: none"> <li>Conduct Beneficiary Impact Assessment.</li> <li>Development and Implementation of Environmental and Social Management Plan (ESMP)</li> <li>Hiring and management of workers</li> </ul> | <ul style="list-style-type: none"> <li>1, 5</li> </ul>       | <ul style="list-style-type: none"> <li>PCU capacity to monitor implementation of ESMP and assess beneficiary impacts</li> <li>Workers' grievances</li> </ul>                                                                                                  |
| 6   | C3-2              | Project Coordination                            | <ul style="list-style-type: none"> <li>Screening of SMEs for their capacity to carry out E&amp;S actions</li> <li>Procurement of vehicles for PCU, office equipment and furniture as may be required.</li> </ul>              | <ul style="list-style-type: none"> <li>1, 4, 5</li> </ul>    | <ul style="list-style-type: none"> <li>PCU competence to undertake E&amp;S screening of grant beneficiaries</li> </ul>                                                                                                                                        |

### 6.8.1 Preparatory Phase: Major and moderate adverse impacts and specific measures

The preparatory phase major and moderate adverse impacts are provided in **Table 6-2**.

**Table 6- 2: Preparatory Phase Potential Adverse Impacts**

| AfDB OS and Ghana EPA Legislation                                                                  | Potential Impact                                        | Sources of Impact                                                                                                                                                                                                                                                               | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Involuntary resettlement, land acquisition, population displacement and compensation</i></b> | Land related disputes                                   | Acquisition of lands without following due process could result in land-related disputes                                                                                                                                                                                        | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Ownership of land should be made a requirement for qualification as a project beneficiary. Evidence of ownership should be produced and documented</li> <li>• For lands without deeds, community consent should be obtained and confirmed</li> </ul>                                                                                                                                                                                                                                                                                                                   |
|                                                                                                    | Restricted access to pasture and loss of economic trees | <p>The project activities could restrict locals access to lands that were otherwise used as pasture areas.</p> <p>There could also be loss of economic trees such as shea and dawadawa which provides a livelihood for some locals especially women who pick and sell them.</p> | Local  | Permanent | Weak      | Moderate | <ul style="list-style-type: none"> <li>• Identify and propose alternative pasture areas to locals who otherwise used the project site as pasture area.</li> <li>• Provide locals with some financial and technical support to acquire a sustainable source of feed for their livestock.</li> <li>• Encourage locals to practice the cut and carry system</li> <li>• Consider employing local women as part of project implementation</li> <li>• Build capacity of women to own and run businesses that will provide services to the project.</li> <li>• Prepare a RAP to assess impact on livelihood</li> </ul> |

| AfDB OS and Ghana EPA Legislation                                      | Potential Impact                                       | Sources of Impact                                                                                                                                                                  | Extent   | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------|-----------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Biodiversity, renewable resources and ecosystem services</i></b> | Destruction of vegetation and displacement of wildlife | Site clearing will lead to the destruction of some common vegetation, a few trees and destruction of the habitats of some animals.                                                 | Local    | Permanent | Weak      | Moderate | <ul style="list-style-type: none"> <li>• Clear only area required for the project</li> <li>• Stray animals that are observed at or around project sites should be given safe passage to nearby bush and not killed.</li> <li>• Hunting and or killing of wildlife/animals in bushes around project site by construction/other workers should be prohibited and made punishable.</li> </ul>                                                                                                                              |
| <b><i>Environmental and social assessment</i></b>                      | Flooding                                               | The project implementation could be adversely affected by events of flood from torrential rainfall in the wet season especially in low-lying areas affecting properties and lives. | Regional | Temporary | Strong    | Moderate | <ul style="list-style-type: none"> <li>• Educate workers and community on early warning signs of flood</li> <li>• Discourage the siting of farms within or close to river beds</li> <li>• Collaborate with spatial planning and disaster management agencies, using disaster maps and systems, to stay away from flood-prone areas</li> <li>• Infrastructure for agricultural establishments should be constructed preferably on high grounds</li> <li>• Provide insurance cover for equipment and personnel</li> </ul> |

## **Preparatory Phase Negative Impacts**

### **Land related disputes**

The project communities are largely rural communities with vast land hence land take is not expected to generate major disputes. However, some farmers or individuals in order to be considered for project support may hurriedly acquire lands without following due process. This could result in ownership being contested especially if there is an ongoing land dispute resulting in a protracted dispute that could have some security implications.

Ownership of land should be made a requirement for qualification as a project beneficiary and evidence of ownership should be produced and documented. For lands without deeds, family or community consent should be obtained and documented before project is implemented.

### **Impact on livelihoods**

Rearing of animals is a key economic activity in the project communities and animals such as cattle, sheep, and goat graze on surrounding vegetated lands. However, project activities such as land clearing and levelling could restrict locals access to lands that were otherwise used as pasture areas. Considering that there are vast adjoining uncultivated lands, herdsman can still lead their animals to graze at other areas.

Project activities such as land clearing could destroy some economic trees like dawadawa and shea. Women are known to pick fruits of these wild trees and sell as a means of livelihood. Since these trees grow in the wild, picking can be done in other areas.

The impact is local and the displacement will be temporary as alternative sites exist. The impact is therefore considered moderately significant.

Identification and proposal of alternative pasture areas to locals who otherwise used the project site as pasture area will help reduce the impact of restricted access. Furthermore, locals and herdsman can be provided with some financial and technical support to acquire a sustainable source of feed for their livestock. Herdsman can practice the cut and carry system i.e. grass is cut and carried to feed animals to avoid any potential conflicts over access. Women earning a living out of shea and dawadawa picking should be considered for employment both during construction and operation phases of the project. It is recommended that the capacity of women is built so they can own and run small and medium scale enterprises that will provide services to the project and the community at large. Also, preparation of a detailed RAP will be required to fully assess the impact on livelihood.

### **Destruction of vegetation and displacement of wildlife**

Site clearing for soil suitability assessments and land preparation will lead to the destruction of some common vegetation, mostly shrubs and grasses, and a few trees. As required by the project, beneficiary farmers must own vast lands (>100 ha) and clearing of such vast areas could adversely affect vegetation including economic trees like shea and dawadawa. Habitats of common soil organisms such as dung beetle and earthworms will also be destroyed. However, the area, especially in the dry season, has very sparse vegetation and little fauna hence impact on vegetation will only be moderate.

To mitigate the impact of vegetation loss from clearing, only area required for project be cleared. Vegetation clearing should be carried out in the dry season when very few plants will be affected. Economic trees such as dawadawa and shea should be avoided during clearing, if possible. Stray animals that are observed at or around project sites should be given safe passage to nearby bush and not killed. Hunting and or killing of wildlife/animals in bushes around project site by construction/other workers should be prohibited and made punishable.

### **Flooding**

The project area experiences some flood events in the rainy season after torrential downpours affecting mainly low-lying communities. Water bodies in the area including the Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfu, Fuonaa streams, Kong, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembelle dugouts, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River Lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, Nyirebere, are less than 0.1km to 6.0km away from project communities could overflow their banks and flood these communities. Flood events could lead to disruption of livelihood activities, loss of property and even lives. Also, supply chains could be disrupted by loss of infrastructure such as bridges and roads in flood events. This impact is regional, severe yet temporary hence considered moderate.

Flood events have the potential of disrupting the implementation of the project in the municipality unless farmers are discouraged from siting their farms within or close to river beds. Other mitigation measures include collaboration with spatial planning and disaster management agencies, using disaster maps and systems to stay away from flood-prone areas. Infrastructure for agricultural establishments should be constructed preferably on higher grounds or an artificial elevation. Workers and the community must be educated on early warning signs of flood and insurance cover provided for equipment and personnel.

### 6.8.2 Construction Phase: Major and moderate adverse impacts and specific measures

The construction phase major and moderate adverse impacts are provided in **Table 6-3**.

**Table 6- 3: Construction Phase Potential Adverse Impacts**

| AfDB OS and Ghana EPA Legislation                                                    | Potential Impact | Sources of Impact                                                                                                                                           | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pollution prevention and control, hazardous materials and resource efficiency</b> | Soil erosion     | Excavation for foundation of structures could lead to soil erosion and creation of gullies through runoff especially in the rainy season                    | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>• All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                                                                             |
|                                                                                      | Air Pollution    | Emission of dust from transport of materials especially on untarred routes to project site. Emission of fumes from poorly maintained vehicles and equipment | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>• Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>• Suppress dust by watering dusty construction areas.</li> <li>• Ensure the use of nose mask in dusty environment.</li> <li>• Service vehicles and equipment regularly</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact    | Sources of Impact                                                                      | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------|---------------------|----------------------------------------------------------------------------------------|--------|-----------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Water Pollution     | Sediment and waste oil transport into nearby water bodies                              | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> <li>• Manage leaked oil by placing trays under trucks to collect leaked oil.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                |
|                                   |                     | Domestic waste from the construction workers and food vendors to the construction crew | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide bins for collection of solid waste</li> <li>• Educate workers on the importance of waste management</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                   | Noise and Vibration | Operation of construction equipment, movement of haulage vehicles and tooting of horns | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>• A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> <li>• Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> <li>• All equipment and tools must be checked for suitability for the task.</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact              | Sources of Impact                                                                                                                                                                                                                                                                                                                                                                                                 | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |        |           |           |          | <ul style="list-style-type: none"> <li>• All construction equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> <li>• Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>• Provide silencers on all noise generating equipment.</li> </ul>                                                                                                                               |
|                                   | Waste generation and disposal | <p>Clearance of vegetation at project site, construction debris, pieces of steel/metal, packaging materials, plastic pieces, human waste etc. if not disposed properly could clog drains and facilitate the outbreak of sanitary related diseases such as cholera</p> <p>Inefficient waste management during construction, operation and maintenance of equipment leading to excess consumption of materials,</p> | Local  | Temporary | Strong    | Major    | <ul style="list-style-type: none"> <li>• Ensure that construction debris are collected from work sites to avoid blocking of drains and waterways.</li> <li>• Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>• Only licensed waste management companies must be engaged to collect and dispose of waste collected from the site.</li> <li>• Regular briefing or training on waste management must be provided to workers at the site.</li> <li>• Have SOPs for managing hazardous and non-hazardous waste.</li> </ul> |

| AfDB OS and Ghana EPA Legislation           | Potential Impact               | Sources of Impact                                                                                                                             | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             |                                | generation of wastes/emissions, pollution of soils and water.                                                                                 |        |           |           |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Labour conditions, health and safety</b> | Workplace incidents/accidents  | Workplace and traffic accidents/incidents and animal/insect threat/bites                                                                      | Local  | Temporary | Strong    | Major    | <ul style="list-style-type: none"> <li>• Good housekeeping around work area must be ensured to prevent slips, trips &amp; falls.</li> <li>• Only trained and competent workers should be allowed to carry out work, and must be well briefed on safe working procedures.</li> <li>• Appropriate work platforms and PPE must be used for specific tasks such as work at height.</li> <li>• Mandatory and basic PPE including hardhat, hand gloves, safety goggles, HiVis and safety boots must be worn.</li> <li>• Have accident and incident reporting form available to record accidents and near-misses</li> </ul> |
|                                             | Poor labour working conditions | Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions. | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide all workers with signed contracted that are consistent with national labour laws</li> <li>• Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                               |

| AfDB OS and Ghana EPA Legislation | Potential Impact | Sources of Impact                                                                                                                                                                                                                                                                                       | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                  |                                                                                                                                                                                                                                                                                                         |        |           |           |          | <ul style="list-style-type: none"> <li>• Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> <li>• Require workers to sign Code of Conduct and provide adequate training to both the workers and the communities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                   | Traffic impact   | Transport of materials and equipment to and from the project site through communities and townships raises traffic/public safety concerns. Broken-down, inappropriately parked or slow-moving haulage/construction trucks could lead to road accidents and traffic congestion especially on busy roads. | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> <li>• Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> <li>• Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>• Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>• Have checklists available to manage vehicle and equipment maintenance and management</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact      | Sources of Impact                                                                                                                                                                                                                 | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                       |                                                                                                                                                                                                                                   |        |           |           |          | <ul style="list-style-type: none"> <li>• Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>• Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>• Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>• Have accident and incident reporting form to record accidents and near-misses.</li> </ul> |
|                                   | Fire outbreak         | Fire outbreaks from negligence of workers or the public burning refuse, game hunting and workers not properly extinguishing stubs of cigarette. These fires could spread causing injuries to persons and destruction of property. | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Create fire belts around project site to deal with any fire incidents</li> <li>• Liaise with the Fire Service to sensitize workers and the community on fire risks</li> <li>• Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                 |
|                                   | Gender based violence | Presence of workers and increase in incidents of rape, defilement and GBV                                                                                                                                                         | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> </ul>                                                                                                                                                                                                                                           |

| AfDB OS and Ghana EPA Legislation | Potential Impact     | Sources of Impact                                                         | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|----------------------|---------------------------------------------------------------------------|--------|-----------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                      |                                                                           |        |           |           |          | <ul style="list-style-type: none"> <li>• Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>• A minimum requirement of female employment should be indicated in contract documents</li> <li>• Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul> |
|                                   | Public health issues | Pollution of local water bodies will adversely affect the health of users | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Ensure proper waste management</li> <li>•</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| AfDB OS and Ghana EPA Legislation | Potential Impact  | Sources of Impact                                                                                                                                                                                                          | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                   | <p>Sexual relations between workers and locals may bring about increase in sexually transmitted diseases including HIV/AIDs.</p> <p>Interactions between workers and locals could also lead to the spread of COVID-19.</p> | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>• Provide female and male condoms to the community and workers.</li> <li>• Conduct daily temperature screening of workers and visitors.</li> <li>• Provide handwashing stations and sanitizers at all sites.</li> <li>• Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>• Encourage workers to get vaccinated.</li> <li>• Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> <li>• Provide condoms to the community and workers.</li> </ul> |
|                                   | Security concerns | <p>Violent behaviour and confrontations between workers and locals.</p> <p>Workers who are deemed to be financially sound could be victims of theft and burglary</p>                                                       | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide adequate security by liaising with Police to conduct regular patrols or make private security arrangement</li> <li>• Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| AfDB OS and Ghana EPA Legislation | Potential Impact | Sources of Impact                                                                                           | Extent | Duration | Intensity | Severity | Mitigation |
|-----------------------------------|------------------|-------------------------------------------------------------------------------------------------------------|--------|----------|-----------|----------|------------|
|                                   |                  | Potential conflict over sexual affairs, child labour, drunk driving, accidents and destruction of property. |        |          |           |          |            |

## **Construction and Operation Phase Negative Impacts**

### ***Soil degradation***

#### Construction

Levelling, as part of land preparation, and excavation for foundation of structures such as sheds and warehouses could lead to soil erosion and creation of gullies through runoff especially in the rainy season. Also, oil spillages from the maintenance of construction equipment and vehicles could contaminate soils and affect flora and soil fauna including dung beetles and earthworms. As there are vast adjoining lands, excavated spoils from land levelling could be pushed into other tracts of land creating unsightly scenes. The impact is largely localized, persistent and of average severity hence it is considered moderate.

However, with measures such as reinstatement of excavated areas, maintenance of vehicles, machines and fuel refilling at a designated area, contamination of soil can be avoided. Fuel storage and refilling sites should be kept away from drains and important water bodies. All spoils shall be disposed of as desired and the site shall be fully cleaned before handing over. These measures are expected to minimize the impact on soil.

#### Operation

Leaving farmlands bare especially after harvesting could expose the soil to wind erosion from the strong winds in the dry season. Leaked or spilled oils from maintenance/operation of equipment and vehicles could contaminate soil and adversely affect soil fauna. Also, contaminated soil could be washed into nearby waterbodies via runoff. However, this impact is localized and of average severity hence considered moderate in significance.

Farmlands should be kept vegetated at all times to prevent wind erosion from strong winds. Drains must be created to properly channel runoff. An area should be designated for maintenance of vehicles and spill kits provided for accidental spillages.

### ***Air Pollution***

#### Construction

Land preparation and transport of materials on untarred roads will lead to emission of particulate matter i.e. dust and fumes and adversely affect air quality, especially in the dry season. The impact on air quality is likely to be considerable especially when particulate matter is carried over some distance by winds like the harmattan winds that characterize the climate of the project area. However, any possible impacts will be temporary hence the significance will be moderate.

Construction vehicles and equipment should be maintained regularly to reduce their emissions and engine idling should be discouraged. Water should be sprinkled on cleared areas and all areas that have loose soil and the potential for dust pollution to suppress dust.

### Operation

At the operation stage, fumes and dust generated by equipment and vehicles could reduce the quality of air in beneficiary, neighbouring communities and communities along haulage routes. Sensitive receptors such as persons with allergies and upper respiratory tract diseases could experience aggravation of their condition. This impact is temporary but could be regional in extent and considered moderate.

Mitigation measures include regular maintenance of equipment and vehicles, discouraging engine idling and institution of speed limits for drivers.

### ***Water Pollution***

#### Construction

Disposal of domestic waste from construction workers and food vendors and deposition of sediment, waste oil, fertilizer and pesticides via runoff into nearby water bodies will reduce the quality of water and could also smother some fishes and benthic organisms. Waterbodies and water sources that serve the area, such as Daalugre, Yangibua, Nakariwara, Mukar, Navariwiefuo, chirike, Bujanfuo, Fuonaa streams, Kong, Bomboribua, Naprusi Paafiala, Gbefiasi, Bonsunfia, Wellembelle dugouts, Siri, Gbugu, Fuochemi, Chari, Laripuo, Gbaala, Korijabia, Mipaali, River Lipurun, and River Bubua, Gbooko, Pagvene, Bamuse, Nyirebere, are less than 0.1km to 6.0km away from project communities. These waterbodies could be the direct recipient or indirect recipient of pollutants from farms. The extent of the impact is largely local as most of the water bodies are dugouts that do not flow into other water bodies. Pollutants could however, percolate into the ground and contaminate groundwater. The impact severity is average, it is localized and temporary hence considered moderate in significance.

A waste management plan should be developed by the contractor to segregate, collect and dispose of waste to prevent indiscriminate disposal of waste. Maintenance of equipment and vehicle should be done at designated areas with spill kits and drip trays provided to manage spillages.

#### Operation

Domestic wastes, poultry waste, workforce sewage/effluent, as well as runoff from cultivated land (containing fertilizers, pesticides and herbicides etc.) could pollute surface water. Nutrient loading from fertilizers could lead to eutrophication and reduce the water quality making it unsuitable for use.

Wastes should be segregated in designated waste bins and collected regularly by a licensed waste collector. Disposal of wastes near water bodies should be avoided.

### ***Noise and Vibration***

#### Construction

Operation of construction equipment, movement of haulage vehicles and tooting of horns. Construction activities are anticipated to produce noise levels in the range of 80 - 95 dB (A). The construction equipment will have high noise levels, which can affect the personnel operating the machines as well as the residents within the project community or nearby communities.

Use of proper Personal Protective Equipment (PPE) such as earmuffs will mitigate any adverse impact of the noise generated by such equipment on workers. Equipment and vehicles will be maintained regularly to reduce noise levels. Also, construction activities will not be carried out during the night to reduce the impact of noise on residents and other sensitive receptors.

### Operation

Noise and vibration from operation of processing equipment, equipment maintenance, movement of haulage vehicles, tooting of horns and noise from the poultry birds could be a nuisance to persons within the project community or nearby communities

### ***Waste generation and inefficient management***

#### Construction

Clearance of vegetation and levelling of land at project site will generate vegetative waste and excavated spoil. Other wastes such as construction debris, pieces of steel/metal, packaging materials, plastic pieces, human waste etc. if not disposed properly could clog drains, produce foul smell and facilitate the outbreak of sanitary related diseases such as cholera. The impact is local, temporary and of a high intensity hence considered major in significance.

A waste management plan should be developed by the contractor to segregate, collect and dispose of waste to prevent indiscriminate disposal of waste. Segregation of waste such as domestic i.e. food packaging and hazardous waste i.e. containers of pesticides and herbicides should be practiced and waste collected by licensed waste collectors. Maintenance of equipment and vehicle should be done at designated areas with spill kits and drip trays provided to manage spillages.

#### Operation

Improper disposal of vegetative waste from weeding, harvests, domestic waste from workers and effluent from installations could create unsightly scenes and aid in the production of vermin. Also, it could serve as breeding grounds for disease causing vectors like mosquitoes, houseflies etc.

Provide bins and skips for waste collection and ensure it is disposed of regularly. Educate workers, vendors and visitors on the importance of proper waste management.

### ***Workplace incidents/accidents***

Workers could be exposed to workplace and traffic-related accidents/incidents as well as animal/insect threat/bites during land preparation, civil works and transportation of materials or persons.

Injuries resulting from falling from heights and falling objects, as well as from the misuse of equipment and tools, cuts from stepping on sharp objects such as nails and other metal off-cuts and injuries resulting from clashes between vehicles and the workers as they both operate within the same space are likely to occur during the implementation of the project.

This impact is considered significant since it affects human lives and would therefore require adequate mitigation measures. Occupational health and safety risks are rated highly sensitive because they lead to mortality and long-term morbidity involving site workers. It is however, localised small scale and short term, implying its magnitude is low. In terms of significance Occupational Health and Safety risks considered a moderately significant risk, though it has a low magnitude of impact because of its high sensitivity.

To mitigate this impact, the contractor should prepare an Occupational, Health and Safety plan and ensure compliance onsite.

### ***Poor labour working conditions***

Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions such as lack of welfare facilities, restriction of freedom of association and speech, and absence of an effective grievance redress mechanism. If the necessary actions are not put in place to guarantee workers right and stipulate conditions of service to ensure that proper working conditions are implemented on the project. Poor Labour working conditions is rated moderate scale, localised and short term, hence low magnitude of impact. It is also highly sensitive since subjecting employees to poor conditions of service and working conditions are against Ghana's labour laws such as Labour Act 2003 (Act 651). Hence this impact is moderately significant.

Provide all workers with signed contracts that are consistent with national labour laws as well as welfare facilities such as potable drinking water, shades, restrooms etc. Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.

### ***Traffic management***

Transport of materials and equipment to and from the project site through communities and townships raises traffic/public safety concerns. Broken-down, inappropriately parked or slow-moving haulage/construction trucks could lead to road accidents and traffic congestion especially on busy roads. At night, due to poor or low visibility, there is a high probability of road accidents. Though temporary, this is considered major as it is regional in extent and of high severity because it could result in fatality.

To avoid or reduce road traffic accidents and incidents, only qualified drivers should be used, vehicles must be maintained regularly to ensure that they are in good working condition, use of signs as appropriate and driving at night should be discouraged. Also, speed limits must be set to ensure safe driving e.g. 20km/h onsite, 40km/h on approaching communities along haulage routes and a maximum speed of 100km/h on highways.

### ***Fire outbreak***

Fire outbreaks from negligence of workers or the public burning refuse, game hunting and workers not properly extinguishing stubs of cigarette. Fire outbreaks may also emanate from power surges or the use of sub-standard electrical cables and sockets. These fires could spread causing injuries or death to persons and destruction of property. Community health and safety risks on the site are rated regional, short term

and small scale; low magnitude but highly sensitive because they lead to mortality and long-term morbidity. Hence such impacts are moderately significant.

### ***Gender based violence***

Workers with relatively high incomes will be working on the various sites. The site workers can lure girls, hawkers, food vendors, other petty traders who supply them food and other services and defile or rape them. Workers may also abuse themselves and/or supervisors. They can also do same to their wives, partners, children, hawkers, petty traders and food vendors physically or verbally over misunderstanding of prices of goods and services and other issues.

Sexual favours could be demanded in exchange for jobs, promotion or other work-related benefits. Women may also be discriminated against, denied employment opportunities and /or their services may be undervalued on the basis of cultural norms. The incidence of GBV is short-term and small-scale hence considered moderate.

To prevent incidences of GBV, legal processes set out by national law must be followed. Policies on SEA/SH should be developed and implemented. Worker contracts should have clauses prohibiting rape, defilement, sexual harassment, child/forced labour and other GBV. An employment quota should be allocated to women. Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone.

### ***Public health issues***

Dust borne communicable diseases, respiratory infections and minor throat and eye irritations are expected, especially during the dry season because of the emission of vehicular pollutants and dust (carbon monoxide and particulates). The presence of workers and related increase in disposable cash makes the transmission of STDs a possibility. During project execution (civil works), large numbers of workers will be required to assemble together in meetings, and even at work sites; varied number of workforces including suppliers of material and services are also expected to come in from various places which may be COVID-19 hot spots; and interaction of workers with the project host community. The potential for the spread of any infectious disease like COVID-19 is high.

Improper waste management may create conditions for the growth of vectors of diseases such as cholera and dysentery. The outbreak of these diseases would have far-reaching negative implications for the health of residents and put pressure on the limited health facilities in the area.

An awareness and sensitization campaign together with responsible government agencies like National AIDS Commission should ensure that the people in the project area (workers and locals) are made aware of the issues and provided with condoms. Conduct daily temperature screening of workers and visitors for COVID-19.

### ***Snake bite risks***

Women and any other persons collecting dawadawa and shea fruits are likely to be exposed to snake bites as the project region i.e. Upper West region is known to have high cases of snake bites. According to the

African Research Network for Neglected Tropical Disease, the Upper West had the highest average number of snakebites i.e. 1,425 cases between 2015 and 2019 and records 114 bites per 100,000 persons. Impacts of this risk include reduction in productivity of victims who skip work to seek treatment, prolonged illness or premature death due to unavailability or high cost of anti-snake venom (USD 100 per vial). Considering that victims require 3 to 8 vials, health facilities may not have adequate supplies, and victims may resort either to traditional medicine (that may be ineffective) or they will not seek treatment at all. This impact is localised, temporary and average in intensity as it can lead to hospitalization and even death. It is therefore considered moderate in significance.

Pickers should be provided with picker tools and PPE such as wellington boots either for free or at a subsidised price to prevent them from picking with their bare hands and reduce their exposure to bites. Project to identify a local health facility with regular supply and adequate stock of vials and designate as a referral facility for snake bites. Locals should be sensitized on the importance of avoiding snakes and seeking early medical help after snake bites.

### ***Security concerns***

Civil works can be associated with theft and pilfering of construction materials normally from the general public and site workers. Site workers can also steal from private properties within the immediate project zone. Other crimes include illicit sexual affairs, child labour and drunk driving, which are criminal under the laws of Ghana.

There may also be confrontations arising out of accidents and destruction of property by workforce, equipment or vehicles. This impact is localized, severe but temporary hence considered moderate.

Workers and local community should be sensitized on cultural tolerance and grievance mechanisms to prevent confrontations. Workers should be made to sign and adhere to a code of conduct which prohibits vices.

### 6.8.3 Operation Phase: Major and moderate adverse impacts and specific measures

The operation phase major and moderate adverse impacts are provided in **Table 6-4**.

**Table 6- 4: Operation Phase Potential Adverse Impacts**

| AfDB OS and Ghana EPA Legislation                                                    | Potential Impact                     | Sources of Impact                                                                                                                    | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pollution prevention and control, hazardous materials and resource efficiency</b> | Soil erosion                         | Leaving farmlands bare especially after harvesting could expose the soil to sheet erosion from the strong winds in the dry season    | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>• All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                         |
|                                                                                      | Air Pollution                        | Emission of fumes/dust from haulage of materials and equipment especially on untarred routes to farms or agricultural establishments | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>• Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>• Suppress dust by watering dusty construction areas.</li> <li>• Ensure the use of nose mask in dusty environment.</li> </ul> |
|                                                                                      | Water Pollution and over abstraction | Sediment and waste oil transport into nearby water bodies                                                                            | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> </ul>                                                                                                                                                                                                                            |

| AfDB OS and Ghana EPA Legislation | Potential Impact             | Sources of Impact                                                                                                                                                                      | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                              |                                                                                                                                                                                        |        |           |           |          | <ul style="list-style-type: none"> <li>• Manage leaked oil by placing trays under trucks to collect leaked oil.</li> <li>• Monitor volumes of water used and keep records</li> <li>• Promptly fix faulty or leaking pipes to preserve water</li> </ul>                                                                                                                                                                                                                    |
|                                   | Pollution of Soils and Water | Pollution of watercourses caused by wastes of workforce, sewage effluent, as well as runoff from land used for growing maize (containing fertilisers, pesticides and herbicides etc.). | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Prepare and implement a Pesticides Management Plan</li> <li>• Treat waste at source before discharge</li> </ul>                                                                                                                                                                                                                                                                                                                  |
|                                   | Odours                       | Odours associated with poultry and waste may have nuisance value for nearby receptors.                                                                                                 | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Sensitive site selection, and siting of construction works and access roads.</li> <li>• Use of modern equipment, meeting appropriate emissions standards, and regular preventative maintenance.</li> <li>• Implement measures to increase efficiency of vehicle use, aiming to reduce the number of journeys and vehicles required.</li> <li>• No use of ozone depleting substances during construction or operation.</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact    | Sources of Impact                                                                                                                                                     | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                     |                                                                                                                                                                       |        |           |           |          | <ul style="list-style-type: none"> <li>• Dust and odour control and suppression measures, such as dampening and use of vegetation hedges.</li> <li>• Implement appropriate waste disposal measures</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                   | Noise and Vibration | Noise and vibration from operation of processing equipment, equipment maintenance, movement of haulage vehicles and tooting of horns and noise from the poultry birds | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>• A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> <li>• Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> <li>• All equipment and tools must be checked for suitability for the task.</li> <li>• All equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact              | Sources of Impact                                                                                                                                                                        | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                               |                                                                                                                                                                                          |        |           |           |          | <ul style="list-style-type: none"> <li>• Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>• Provide silencers on all noise generating equipment.</li> </ul>                                                                                                                                                                                                           |
|                                   | Waste generation and disposal | Improper disposal of waste i.e. packaging, refuse and effluent from installations could clog drains and facilitate the outbreak of sanitary related diseases such as cholera and malaria | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>• Only licensed waste management companies must be engaged to collect and dispose of waste collected from the site.</li> <li>• Regular briefing or training on waste management must be provided to workers at the site.</li> <li>• Have SOPs for managing hazardous and non-hazardous waste.</li> </ul> |
|                                   | Inefficient waste management  | Inefficient waste management during operation and maintenance leading to excess consumption of materials, generation of wastes/emissions, pollution of soils and water.                  | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Materials handling and control procedures, use of appropriate storage and containment equipment.</li> <li>• Control of vehicle movements and prohibition of vehicle washing in watercourses, and similar practices</li> <li>• • Emergency response plans during construction (contractors and local</li> </ul>                                                                                      |

| AfDB OS and Ghana EPA Legislation           | Potential Impact               | Sources of Impact                                                                                                                                     | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             |                                |                                                                                                                                                       |        |           |           |          | authorities) and operation (local authorities).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Labour conditions, health and safety</b> | Occupational health and safety | Workplace and traffic accidents/incidents and animal/insect threat/bites<br><br>Incidence of transmission of H1NI virus from poultry to the workforce | Local  | Temporary | Strong    | Major    | <ul style="list-style-type: none"> <li>• Good housekeeping around work area must be ensured to prevent slips, trips &amp; falls.</li> <li>• Only trained and competent workers should be allowed to carry out work, and must be well briefed on safe working procedures.</li> <li>• Appropriate work platforms and PPE must be used for specific tasks such as work at height.</li> <li>• Mandatory and basic PPE including hardhat, hand gloves, safety goggles, HiVis and safety boots must be worn.</li> <li>• Have accident and incident reporting form available to record accidents and near-misses</li> </ul> |
|                                             | Poor labour working conditions | Lack of employment contracts could lead to workers being paid rates below the stipulated national minimum wage or work under poor conditions.         | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide all workers with signed contracted that are consistent with national labour laws</li> <li>• Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                               |

| AfDB OS and Ghana EPA Legislation | Potential Impact | Sources of Impact                                                                                                                                                                                                                                                                          | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                  |                                                                                                                                                                                                                                                                                            |        |           |           |          | <ul style="list-style-type: none"> <li>Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                   | Traffic impact   | Transport of materials and equipment to and from the project site through communities and townships raises traffic/public safety concerns. Broken-down, inappropriately parked or slow moving haulage trucks could lead to road accidents and traffic congestion especially on busy roads. | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>Ensure all visitors accessing site are in appropriate PPE</li> <li>The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> <li>Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> <li>Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>Have checklists available to manage vehicle and equipment maintenance and management</li> </ul> |

| AfDB OS and Ghana EPA Legislation | Potential Impact      | Sources of Impact                                                                                                                                                                                                         | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                       |                                                                                                                                                                                                                           |        |           |           |          | <ul style="list-style-type: none"> <li>• Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>• Appropriate warning signs are put in place, as required.</li> <li>• Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>• Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>• Have accident and incident reporting form to record accidents and near-misses.</li> </ul> |
|                                   | Fire outbreak         | Fire outbreaks from negligence of workers or the public burning refuse, game hunting and not properly extinguishing stubs of cigarette. These fires could spread causing injuries to persons and destruction of property. | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Create fire belts around project site to deal with any fire incidents</li> <li>• Liaise with the Fire Service to sensitize workers and the community on fire risks</li> <li>• Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                                                                                     |
|                                   | Gender based violence | Presence of workers and increase in incidents of rape, defilement and GBV                                                                                                                                                 | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> </ul>                                                                                                                                                                                                                                                                                                               |

| AfDB OS and Ghana EPA Legislation | Potential Impact     | Sources of Impact                                                         | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|----------------------|---------------------------------------------------------------------------|--------|-----------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                      |                                                                           |        |           |           |          | <ul style="list-style-type: none"> <li>• Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>• A minimum requirement of female employment should be indicated in contract documents</li> <li>• Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul> |
|                                   | Public health issues | Pollution of local water bodies will adversely affect the health of users | Local  | Temporary | Weak      | Minor    | <ul style="list-style-type: none"> <li>• Treat waste as source</li> <li>• Prepare Pest Management Plan</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| AfDB OS and Ghana EPA Legislation | Potential Impact | Sources of Impact                                                                                                                                                                                                                                                                            | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                  | <p>Sexual relations between workers and locals may bring about increase in sexually transmitted diseases including HIV/AIDs.</p> <p>Interactions between workers and locals could also lead to the spread of COVID-19.</p> <p>Incidence of outbreak of H1N1 virus from poultry to humans</p> | Local  | Temporary | Weak      | Moderate | <ul style="list-style-type: none"> <li>• Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>• Provide female and male condoms to the community and workers.</li> <li>• Conduct daily temperature screening of workers and visitors.</li> <li>• Provide handwashing stations and sanitizers at all sites.</li> <li>• Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>• Encourage workers to get vaccinated.</li> <li>• Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> <li>• Provide condoms to the community and workers.</li> </ul> |
|                                   |                  | Snake bite risks                                                                                                                                                                                                                                                                             | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide pickers with picker tools and PPE at subsidized rate to reduce exposure to bites</li> <li>• Identify a local health facility with regular supply and adequate stock of vials and designate as a referral facility for snake bites.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| AfDB OS and Ghana EPA Legislation | Potential Impact  | Sources of Impact                                                                                                                                                                                                                                                                       | Extent | Duration  | Intensity | Severity | Mitigation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   |                   |                                                                                                                                                                                                                                                                                         |        |           |           |          | <ul style="list-style-type: none"> <li>• Sensitize locals on the importance of avoiding snakes and seeking early medical help after snake bites</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                   | Security concerns | <p>Violent behaviour and confrontations between workers and locals.</p> <p>Workers who are deemed to be financially sound could be victims of theft and burglary</p> <p>Potential conflict over sexual affairs, child labour, drunk driving, accidents and destruction of property.</p> | Local  | Temporary | Average   | Moderate | <ul style="list-style-type: none"> <li>• Provide adequate security by liaising with Police to conduct regular patrols or make private security arrangement</li> <li>• Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> <li>• Adoption of a Stakeholder Engagement Plan, as a framework for</li> <li>• early and ongoing community consultation.</li> <li>• Implementation of a Grievance Redress Mechanisms.</li> <li>• Works procedures, defining a Code of Appropriate Conduct for all workers, including acceptable behaviour with respect to community interactions.</li> </ul> |

**Cumulative Negative Impacts of the Project**

In the medium to long term, the project is likely to have some cumulative impacts including:

- Surface water pollution as a result of runoff carrying waste including refuse, sewage, remnant pesticides/weedicides/fertilizers, poultry waste, waste oils into nearby water bodies
- Contamination of groundwater from mismanagement of boreholes and wells for irrigation and other uses
- Waste generation from multiple sources, and multiple waste and dumping sites from uncoordinated waste management.

Mitigation measures for these impacts include careful design, implementation of the ESMP, and ensuring compliance through monitoring to confirm that activities and their outputs meet permissible limits (e.g. air emissions, chemical use, effluent treatment) under national law and international best practice.

## 7.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This section presents the Environmental and Social Management Plan (ESMP), **Table 7-1** that is designed to operationalize the environmental and social commitments presented in this ESIA report. The ESMP presents a set of management, mitigation and monitoring measures to be taken at different stages of the project implementation. It sets out record keeping required to ensure that mitigation measures and monitoring are effective and results duly communicated to stakeholders.

**Table 7- 1: Environmental and Social Management Plan**

| Impact                                                         | Project Phase | Source                                                             | Mitigation Hierarchy                                               | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Responsible Party | Monitoring                                             | Cost (USD) |
|----------------------------------------------------------------|---------------|--------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Preparatory Phase</b>                                       |               |                                                                    |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                                                        |            |
| <b>Restricted access to pasture and loss of economic trees</b> | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Repair or remedy</li> </ul> | <ul style="list-style-type: none"> <li>Identify and propose alternative pasture areas to locals who otherwise used the project site as pasture area.</li> <li>Provide locals with some financial and technical support to acquire a sustainable source of feed for their livestock.</li> <li>Encourage locals to practice the cut and carry system</li> <li>Consider employing local women as part of project implementation</li> <li>Build capacity of women to own and run businesses that will provide services to the project.</li> <li>Prepare a RAP to assess impact on livelihood</li> </ul> | PCU               | Environmental and Social Safeguards Specialists of PCU | 5,000      |
| <b>Destruction of vegetation and displacement of wildlife</b>  | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Offset</li> </ul>           | <ul style="list-style-type: none"> <li>Clear only area required for the project</li> <li>Reinstate excavated areas immediately after works to prevent excavated spoil from being transported by runoff into nearby water bodies</li> <li>Stray animals that are observed at or around project sites should be given safe passage to nearby bush and not killed.</li> <li>Hunting and or killing of wildlife/animals in bushes around project site by construction/other workers should be prohibited and made punishable.</li> </ul>                                                                | Works contractor  | Environmental Safeguards Specialist of PCU             | 5,000      |
| <b>Flooding</b>                                                | Preparatory   | <ul style="list-style-type: none"> <li>Site preparation</li> </ul> | <ul style="list-style-type: none"> <li>Avoid</li> </ul>            | <ul style="list-style-type: none"> <li>Educate workers and community on early warning signs of flood</li> <li>Discourage the siting of farms within or close to river beds</li> <li>Collaborate with spatial planning and disaster management agencies, using disaster maps and systems, to stay away from flood-prone areas</li> <li>Infrastructure for agricultural establishments should be constructed preferably on high grounds</li> <li>Provide insurance cover for equipment and personnel</li> </ul>                                                                                       | PCU               | Environmental and Social Safeguards Specialists of PCU | 5,000      |

| Impact                              | Project Phase | Source                                                                           | Mitigation Hierarchy                                                        | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Responsible Party | Monitoring                                 | Cost (USD) |
|-------------------------------------|---------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|------------|
| <b>Construction Phase</b>           |               |                                                                                  |                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                                            |            |
| <b>Soil erosion</b>                 | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>                   | <ul style="list-style-type: none"> <li>Repair or remedy</li> </ul>          | <ul style="list-style-type: none"> <li>Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | Works contractor  | Environmental Safeguards Specialist of PCU | 2,000      |
| <b>Air Pollution</b>                | Construction  | <ul style="list-style-type: none"> <li>Project site and haulage route</li> </ul> | <ul style="list-style-type: none"> <li>Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>Suppress dust by watering dusty construction areas.</li> <li>Ensure the use of nose mask in dusty environment.</li> <li>Service vehicles and equipment regularly</li> </ul>                                                                                                                                                                     | Works contractor  | Environmental Safeguards Specialist of PCU | 5,000      |
| <b>Water Pollution</b>              | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>                   | <ul style="list-style-type: none"> <li>Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> <li>Manage leaked oil by placing trays under trucks to collect leaked oil.</li> <li>Ensure proper waste management</li> </ul>                                                                                                                                                                                                                                                                                                                    | Works contractor  | Environmental Safeguards Specialist of PCU | 15,000     |
| <b>Noise and vibration nuisance</b> | Construction  | <ul style="list-style-type: none"> <li>Equipment and vehicles on site</li> </ul> | <ul style="list-style-type: none"> <li>Abate on site</li> </ul>             | <ul style="list-style-type: none"> <li>Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> <li>Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> <li>All equipment and tools must be checked for suitability for the task.</li> </ul> | Works contractor  | Environmental Safeguards Specialist of PCU | 5,000      |

| Impact                                             | Project Phase | Source                                                           | Mitigation Hierarchy                                                          | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Responsible Party | Monitoring                                             | Cost (USD) |
|----------------------------------------------------|---------------|------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
|                                                    |               |                                                                  |                                                                               | <ul style="list-style-type: none"> <li>• All construction equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> <li>• Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>• Provide silencers on all noise generating equipment.</li> </ul>                                                                                                                                                                                   |                   |                                                        |            |
| <b>Waste generation and inefficient management</b> | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul> | <ul style="list-style-type: none"> <li>• Abate or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Ensure that construction debris are collected from work sites to avoid blocking of drains and waterways.</li> <li>• Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>• Only licensed waste management companies must be engaged to collect and dispose of waste collected from the site.</li> <li>• Regular briefing or training on waste management must be provided to workers at the site.</li> <li>• Have SOPs for managing hazardous and non-hazardous waste.</li> </ul>                                                     | Works contractor  | Environmental Safeguards Specialist of PCU             | 20,000     |
| <b>Workplace accidents/incidents</b>               | Construction  | <ul style="list-style-type: none"> <li>• Project site</li> </ul> | <ul style="list-style-type: none"> <li>• Abate on site</li> </ul>             | <ul style="list-style-type: none"> <li>• Good housekeeping around work area must be ensured to prevent slips, trips &amp; falls.</li> <li>• Only trained and competent workers should be allowed to carry out work, and must be well briefed on safe working procedures.</li> <li>• Appropriate work platforms and PPE must be used for specific tasks such as work at height.</li> <li>• Mandatory and basic PPE including hardhat, hand gloves, safety goggles, HiVis and safety boots must be worn.</li> <li>• Have accident and incident reporting form available to record accidents and near-misses</li> </ul> | Works contractor  | Environmental Safeguards Specialist of PCU             | 20,000     |
| <b>Poor labour working conditions</b>              | Construction  | <ul style="list-style-type: none"> <li>• Project Site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>• Provide all workers with signed contracts that are consistent with national labour laws</li> <li>• Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> <li>• Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> </ul>                                                                                                                                                                                                                                                              | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |

| Impact                                           | Project Phase | Source                                                                           | Mitigation Hierarchy                                                                | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Responsible Party | Monitoring                                             | Cost (USD) |
|--------------------------------------------------|---------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Traffic management/public safety concerns</b> | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>                   | <ul style="list-style-type: none"> <li>Abate on site</li> </ul>                     | <ul style="list-style-type: none"> <li>Hoard project site to prevent unauthorized entry</li> <li>Ensure all visitors accessing site are in appropriate PPE</li> <li>The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> <li>Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> <li>Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>Have checklists available to manage vehicle and equipment maintenance and management</li> <li>Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>Appropriate warning signs including reduced speed, "Men at Work", "No Parking" &amp; hazard triangle must be placed beside road facing oncoming traffic and a similar "End" sign after work area.</li> <li>Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>Have accident and incident reporting form to record accidents and near-misses.</li> </ul> | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 8,000      |
| <b>Fire outbreaks</b>                            | Construction  | <ul style="list-style-type: none"> <li>Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source, repair or remedy</li> </ul> | <ul style="list-style-type: none"> <li>Create fire belts around project site to deal with any fire incidents</li> <li>Liaise with the Fire Service to sensitize workers and the community on fire risks</li> <li>Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 20,000     |

| Impact                       | Project Phase | Source                                                                              | Mitigation Hierarchy                                                                       | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Responsible Party | Monitoring                                             | Cost (USD) |
|------------------------------|---------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Public health issues</b>  | Construction  | <ul style="list-style-type: none"> <li>Project-community interactions</li> </ul>    | <ul style="list-style-type: none"> <li>Avoid at source</li> </ul>                          | <ul style="list-style-type: none"> <li>Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>Provide female and male condoms to the community and workers.</li> <li>Conduct daily temperature screening of workers and visitors.</li> <li>Provide handwashing stations and sanitizers at all sites.</li> <li>Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>Encourage workers to get vaccinated.</li> <li>Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> <li>Provide female and male condoms to the community and workers.</li> </ul> | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 15,000     |
| <b>Security concerns</b>     | Construction  | <ul style="list-style-type: none"> <li>Project site</li> </ul>                      | <ul style="list-style-type: none"> <li>Abate or reduce at source, abate on site</li> </ul> | <ul style="list-style-type: none"> <li>Provide adequate security by liaising with Police to conduct regular patrols</li> <li>Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |
| <b>Gender based violence</b> | Construction  | <ul style="list-style-type: none"> <li>Project and community interaction</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source, repair or remedy</li> </ul>        | <ul style="list-style-type: none"> <li>Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> <li>Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>A minimum requirement of female employment should be indicated in contract documents</li> <li>Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> </ul>                                                                           | Works contractor  | Environmental and Social Safeguards Specialists of PCU | 10,000     |

| Impact                 | Project Phase | Source                                                            | Mitigation Hierarchy                                                          | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Responsible Party | Monitoring                                   | Cost (USD) |
|------------------------|---------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------|------------|
|                        |               |                                                                   |                                                                               | <ul style="list-style-type: none"> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul>                                                                                                                    |                   |                                              |            |
| <b>Operation Phase</b> |               |                                                                   |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                                              |            |
| <b>Soil erosion</b>    | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Landscape should be reinstated or regenerated to reflect its original general view before the project.</li> <li>• All excavations and trenches should immediately be backfilled and compacted to its original state.</li> </ul>                                                                                                                                                                                                                                            | Facility manager  | EPA, Agric Department, District Assembly EHU | 5,000      |
| <b>Air Pollution</b>   | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Trucks and heavy machinery with a valid emission test pass certificate should only be allowed on the project site.</li> <li>• Dust pollution must be reduced by ensuring that drivers do not speed especially on untarred roads.</li> <li>• Suppress dust by watering dusty construction areas.</li> <li>• Ensure the use of nose mask in dusty environment.</li> </ul>                                                                                                    | Facility manager  | EPA, Agric Department, District Assembly EHU | 10,000     |
| <b>Water Pollution</b> | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source</li> </ul>           | <ul style="list-style-type: none"> <li>• Conduct regular maintenance on trucks to prevent oil leakages that could be washed together with sediment into nearby waterbodies</li> <li>• Manage leaked oil by placing trays under trucks to collect leaked oil.</li> <li>• Monitor volumes of water used and keep records</li> <li>• Promptly fix faulty or leaking pipes to preserve water</li> <li>• Prepare and implement a Pesticides Management Plan</li> <li>• Treat waste at source before discharge</li> </ul> | Facility manager  | EPA, Agric Department, District Assembly EHU | 7,000      |
| <b>Noise Nuisance</b>  | Operation     | <ul style="list-style-type: none"> <li>• Facility site</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>• Unnecessary tooting of horn by truck drivers must be avoided.</li> <li>• A noise assessment must be carried out for all heavy machinery prior to use at the site to ensure noise levels are in compliance with EPA's guidelines values.</li> </ul>                                                                                                                                                                                                                         | Facility manager  | EPA, Agric Department,                       | 8,000      |

| Impact                                             | Project Phase | Source                                                          | Mitigation Hierarchy                                               | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Responsible Party | Monitoring                                   | Cost (USD) |
|----------------------------------------------------|---------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------|------------|
|                                                    |               |                                                                 |                                                                    | <ul style="list-style-type: none"> <li>Noise should be kept to a minimum with hearing protection used as deemed necessary for workers. Earmuffs or earplugs are recommended for ear protection. The level of noise must be continuously assessed to keep it within acceptable limits.</li> <li>All equipment and tools must be checked for suitability for the task.</li> <li>All equipment and hand tools should be operated by trained, experienced and competent persons, and where required persons must produce operator's license upon request.</li> <li>Ensure the use of well serviced/maintained vehicles and other equipment with acceptable noise emission levels.</li> <li>Provide silencers on all noise generating equipment.</li> </ul> |                   | District Assembly EHU                        |            |
| <b>Waste generation and inefficient management</b> | Operation     | <ul style="list-style-type: none"> <li>Facility</li> </ul>      | <ul style="list-style-type: none"> <li>Reduce at source</li> </ul> | <ul style="list-style-type: none"> <li>Waste bins must be provided and well labelled for waste segregation and disposal.</li> <li>Only licensed waste management companies must be engaged to collect and dispose of waste collected.</li> <li>Regular toolbox talk on waste management must be provided to operatives/workers at the facility.</li> <li>Have SOPs for managing hazardous and non-hazardous waste.</li> </ul>                                                                                                                                                                                                                                                                                                                          | Facility manager  | EPA, Agric Department, District Assembly EHU | 20,000     |
| <b>Poor labour working conditions</b>              | Operation     | <ul style="list-style-type: none"> <li>Facility site</li> </ul> | <ul style="list-style-type: none"> <li>Avoid at source</li> </ul>  | <ul style="list-style-type: none"> <li>Provide all workers with signed contracted that are consistent with national labour laws</li> <li>Provide welfare facilities such as potable drinking water, shades, restrooms etc. for workers.</li> <li>Encourage frequent breaks and job-rotation to reduce impact of the weather on workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     | Facility manager  | Agric Department, District Assembly EHU      | 10,000     |
| <b>Traffic management/Public safety concerns</b>   | Operation     | <ul style="list-style-type: none"> <li>Facility</li> </ul>      | <ul style="list-style-type: none"> <li>Abate on site</li> </ul>    | <ul style="list-style-type: none"> <li>Ensure all visitors accessing site are in appropriate PPE</li> <li>The highway code must be strictly followed. Driver training must be provided as part of induction training and permit to drive and transportation of materials to project site issued.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            | Facility manager  | EPA, District Assembly EHU                   | 8,000      |

| Impact                      | Project Phase | Source                                                                             | Mitigation Hierarchy                                                                  | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Responsible Party | Monitoring                                                 | Cost (USD) |
|-----------------------------|---------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------|------------|
|                             |               |                                                                                    |                                                                                       | <ul style="list-style-type: none"> <li>• Trained flagmen (to slow down traffic) or trained stop-go men (to halt traffic) must be used to ensure safety when trucks are leaving the project site.</li> <li>• Stop-go men and flagmen must also wear high visibility vests and use approved stop-go signs or flags.</li> <li>• Vehicles to be used on the project must provide maintenance records, and must also be inspected by a competent person before allowed on the project.</li> <li>• Have checklists available to manage vehicle and equipment maintenance and management</li> <li>• Arrangements must be made for truck drivers to ensure peak times are avoided for haulage of materials to site.</li> <li>• Appropriate warning signs are put in place, as required.</li> <li>• Ensure that all trucks used are serviced regularly to maintain optimal performance and ensure safety.</li> <li>• Identify safe parking areas off main roads to allow for unloading and long-term parking of vehicles.</li> <li>• Have accident and incident reporting form to record accidents and near-misses.</li> </ul> |                   |                                                            |            |
| <b>Fire outbreaks</b>       | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid at source, repair or remedy</li> </ul> | <ul style="list-style-type: none"> <li>• Create fire belts around project site to deal with any fire incidents</li> <li>• Liaise with the Fire Service to sensitize workers and the community on fire risks</li> <li>• Secure fire extinguishers for fire fighting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Facility manager  | EPA, Fire Service, Agric Department, District Assembly EHU | 5,000      |
| <b>Public health issues</b> | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or at source</li> </ul>                | <ul style="list-style-type: none"> <li>• Provide information, instructions and trainings on STDs, drug abuse etc. to the workers to create awareness.</li> <li>• Provide female and male condoms to the community and workers.</li> <li>• Conduct daily temperature screening of workers and visitors.</li> <li>• Provide handwashing stations and sanitizers at all sites.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Facility manager  | EPA, Health Directorate, District Assembly EHU             | 15,000     |

| Impact                       | Project Phase | Source                                                                             | Mitigation Hierarchy                                                                             | Mitigation Measure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Responsible Party | Monitoring                                     | Cost (USD) |
|------------------------------|---------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------|------------|
|                              |               |                                                                                    |                                                                                                  | <ul style="list-style-type: none"> <li>• Ensure workers and visitors adhere to all COVID-19 protocols including wearing of face mask and social distancing.</li> <li>• Encourage workers to get vaccinated.</li> <li>• Organize trainings on COVID-19 and STDs for the workers and the community to create awareness.</li> <li>• Provide condoms to the community and workers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                                                |            |
| <b>Snake bite risks</b>      | Operation     | <ul style="list-style-type: none"> <li>• Project community interactions</li> </ul> | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul>                    | <ul style="list-style-type: none"> <li>• Provide pickers with picker tools and PPE at subsidized rate to reduce exposure to bites</li> <li>• Identify a local health facility with regular supply and adequate stock of vials and designate as a referral facility for snake bites.</li> <li>• Sensitize locals on the importance of avoiding snakes and seeking early medical help after snake bites</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               | PCU               | Environmental and Social Safeguards Specialist | 5,000      |
| <b>Security concerns</b>     | Operation     | <ul style="list-style-type: none"> <li>• Community</li> </ul>                      | <ul style="list-style-type: none"> <li>• Avoid or reduce at source</li> </ul>                    | <ul style="list-style-type: none"> <li>• Provide adequate security by liaising with Police to conduct regular patrols or make private security arrangement</li> <li>• Sensitize local community on cultural tolerance and grievance mechanisms to prevent confrontations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Facility manager  | District Security Committee, EPA               | 8,000      |
| <b>Gender based violence</b> | Operation     | <ul style="list-style-type: none"> <li>• Workers, community</li> </ul>             | <ul style="list-style-type: none"> <li>• Avoid or reduce at source, repair and remedy</li> </ul> | <ul style="list-style-type: none"> <li>• Include in works contract clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV</li> <li>• Insert clause requiring contractors and consultants to cooperate with law enforcement agencies investigating cases of gender-based violence</li> <li>• A minimum requirement of female employment should be indicated in contract documents</li> <li>• Clauses prohibiting rape, defilement and other Gender based Violence as well as child and forced labour should be inserted into works contracts</li> <li>• Contact numbers of representative on the Grievance Redress Committee and GBV Service Providers should be pasted around the project site and within the immediate project zone</li> </ul> | Facility manager  | EPA, District Social Welfare Department        | 10,000     |

| Impact                                   | Project Phase | Source | Mitigation Hierarchy | Mitigation Measure                                                                                                                                                                                      | Responsible Party | Monitoring | Cost (USD)     |
|------------------------------------------|---------------|--------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------|----------------|
|                                          |               |        |                      | <ul style="list-style-type: none"> <li>• Discuss issues of Gender Based Violence at daily Toolbox meetings</li> <li>• Display on site posters prohibiting sexual exploitation and harassment</li> </ul> |                   |            |                |
| <b>TOTAL COST OF ESMP IMPLEMENTATION</b> |               |        |                      |                                                                                                                                                                                                         |                   |            | <b>266,000</b> |

## 7.1 ESMP Implementation

### 7.1.1 Institutional Arrangement and Responsibilities

The institutional arrangement identifies the relevant institutions and actors involved with the implementation of the ESMP, their roles and responsibilities. The main institutions or actors concerned with the implementation of the Project and the ESMP related activities are provided in **Table 7-2**. The ESMP implementation activities will be under the overall guidance of the PCU.

**Table 7- 2: Roles and Responsibilities of Key Actors**

| Key Actors / Institutions               | Description of Key Roles/Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Duration                            | Monitoring cost (USD)                                    | Reporting |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------|-----------|
| <b>PCU</b>                              | <ul style="list-style-type: none"> <li>Responsible for project implementation in general.</li> <li>Have the overall responsibility to ensure that the project implements the construction phase management and monitoring requirements provided in the ESMP.</li> <li>Responsible for grievance redress procedure and its functioning and effectiveness of other litigation avoidance measures.</li> <li>Oversee sensitization and awareness programmes.</li> <li>Grievance Redress</li> </ul> | Throughout project implementation   | Included in PCU operation cost                           | Monthly   |
| <b>Ministry of Food and Agriculture</b> | <ul style="list-style-type: none"> <li>Project planning and design</li> <li>Payment of compensations to PAPs, if any</li> <li>Management of contract award</li> <li>Compliance monitoring</li> <li>Grievance redress</li> </ul>                                                                                                                                                                                                                                                                | Preparatory and construction phases | Part of MoFA Annual Budget                               | Quarterly |
| <b>EPA</b>                              | <ul style="list-style-type: none"> <li>Issuing of environmental permit upon review and approval of ESIA</li> <li>Adhoc monitoring of the sub project to ensure compliance with conditions of the Environmental Permit.</li> </ul>                                                                                                                                                                                                                                                              | Throughout project implementation   | Included in fees paid for permit processing and issuance | Annually  |
| <b>Sissala East Municipal Assembly</b>  | <ul style="list-style-type: none"> <li>Adhoc monitoring of project during the construction phase</li> <li>Monitoring facilities during the operational phase of the project to ensure that it is working properly and help resolve operational phase challenges</li> <li>Grievance Redress</li> </ul>                                                                                                                                                                                          | Throughout project implementation   | Municipal Assembly Annual Environmental Budget           | Annually  |

| Key Actors / Institutions                           | Description of Key Roles/Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Duration                                            | Monitoring cost (USD)            | Reporting   |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------|-------------|
| <b>Project Consultant and Safeguards Specialist</b> | <ul style="list-style-type: none"> <li>Ensure that project execution meets specified environmental, social, health and safety guidelines contained in the contract documents and ESMP</li> <li>Issue site instructions to Contractors to ensure environmental and social mitigation measures are implemented by contractors</li> <li>Grievance Redress</li> </ul>                                                                                                                                                                                                               | Duration of the Preparatory and Construction phases | Included in PCU operation budget | As required |
| <b>Works Contractors /Sub Contractors</b>           | <ul style="list-style-type: none"> <li>Contractors for the civil works will be responsible for construction and installations under the project according to project specifications and designs.</li> <li>Contractors are responsible for reinstatement of all damaged properties.</li> <li>Contractors are responsible for implementation of the construction phase mitigation measures provided in the ESMP</li> <li>Responsible for presentation of monthly monitoring report to the PCU</li> <li>Responsible for remedying defects committed during construction</li> </ul> | Construction phase                                  | Included in contractor's BoQ     | Monthly     |
| <b>Grievance Redress Committee</b>                  | <ul style="list-style-type: none"> <li>To receive and find solutions to grievances</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Preparatory and construction phases                 | Included in PCU operation budget | Monthly     |

## 7.2 Monitoring and Reporting

At the project implementation stage, monitoring will be done to confirm the effectiveness of impact management, including the degree of success in implementing mitigation measures. During construction works, checks, reviews and inspections will be carried out to assess compliance with permit conditions. Monitoring will be done by the relevant institutions, the PCU, Agric Department, EPA, Assembly, Fire Service etc. A summary of impacts, mitigation, management and monitoring measures to be implemented is captured in **Table 7-3**.

E&S Monthly monitoring reports will be prepared by the works contractor and submitted to the PCU, Assembly and EPA. The E&S monthly monitoring reports will serve as the basis for EPA's compliance monitoring in line with the permit conditions, and verification of other environmental and social safeguard commitments.

A construction completion report, which is a compilation of outcomes of the monitoring activities, in compliance with EPA's permit conditions and for the records of the Municipal Assembly, will be

prepared. The completion report will form the basis for EPA's final monitoring for project completion and closure. Also, PCU will prepare E&S monthly monitoring reports and share with the lenders to show the extent of compliance with E&S requirements of the EPA and the Bank for the construction period.

### 7.3 Annual E&S Compliance Audits of the Project and Cost

The Annual Environmental and Social Compliance Audit meets AfDB's ISS requirements. The project having a duration of 5 years, 5 audits will be carried out, including one audit per year. These audits will be carried out by an independent consultant who has not carried out any activity under the project. The terms of reference of the Audit as well as each audit report will be submitted to AfDB for review and approval. The PCU will recruit an independent consultant who will be responsible for carrying out annual environmental and social compliance audits of the sub-project.

It should be noted that the annual audit will concern the entire project, therefore the cost as shown below will cover the consideration of the entire project. Also, the cost of an annual audit is USD 30,000 and this includes the consultant's service cost and reimbursable expenses.

#### Cost of implementing environmental and social measures

| Duration    | Materials required for monitoring | No. of audits | Estimated cost of an annual audit (USD) | Total amount (USD) |
|-------------|-----------------------------------|---------------|-----------------------------------------|--------------------|
| Once a year | Field vehicle                     | 5             | 30,000                                  | 150,000            |

**Table 7- 3: Environmental and Social Monitoring Plan**

| No.                       | Potential Environmental and Social Impacts  | Monitoring Parameters/Mean of verification                                                                                                                                                       | Monitoring Site                                                                            | Frequency | Responsibility (Implementation/ Monitoring)     | Cost Estimate/ Year (USD) |
|---------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------|-------------------------------------------------|---------------------------|
| <b>CONSTRUCTION PHASE</b> |                                             |                                                                                                                                                                                                  |                                                                                            |           |                                                 |                           |
|                           | <b>Workplace accidents/incidents</b>        | <ul style="list-style-type: none"> <li>Records of accidents, incidents and near misses.</li> <li>Records of PPE disbursed</li> <li>Housekeeping</li> </ul>                                       | <ul style="list-style-type: none"> <li>Construction site</li> </ul>                        | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|                           | <b>Poor labour working conditions</b>       | <ul style="list-style-type: none"> <li>Availability of copies of signed contracts</li> <li>Human Resource Management Plan/Recruitment Policy</li> <li>Complaints lodged by workers</li> </ul>    | <ul style="list-style-type: none"> <li>Construction site</li> </ul>                        | Quarterly | Environmental and Social Safeguards Specialists | 3,000                     |
|                           | <b>Soil impacts and sediment transport</b>  | <ul style="list-style-type: none"> <li>Observable change in turbidity of water in drains or water bodies</li> <li>Observable oil sheen in drain</li> <li>Observation of rills/gullies</li> </ul> | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental Safeguards Specialist             | 4,000                     |
|                           | <b>Air and Noise Pollution</b>              | <ul style="list-style-type: none"> <li>Dust (PM2.5, PM10 and TSP)</li> <li>Emissions (NOx, SOx, TSP)</li> <li>Noise (dB) levels</li> <li>Number of complaints by residents/workers</li> </ul>    | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Monthly   | Environmental Safeguards Specialist             | 5,000                     |
|                           | <b>Waste generation and disposal impact</b> | <ul style="list-style-type: none"> <li>Number of mobile toilets and dustbins provided on site</li> <li>Number of times waste is lifted in a week i.e. waste transfer notes</li> </ul>            | <ul style="list-style-type: none"> <li>Construction site and Immediate environs</li> </ul> | Weekly    | Environmental Safeguards Specialist             | 3,000                     |

| No. | Potential Environmental and Social Impacts       | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                                         | Monitoring Site                                                                              | Frequency | Responsibility (Implementation/ Monitoring)     | Cost Estimate/ Year (USD) |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------|-------------------------------------------------|---------------------------|
|     |                                                  | <ul style="list-style-type: none"> <li>• Cleanliness of site/housekeeping</li> <li>• Odour</li> <li>• Presence of human waste on site</li> <li>• Complaints by workers/residents</li> </ul>                                                                                                                                                        |                                                                                              |           |                                                 |                           |
|     | <b>Traffic management/Public safety concerns</b> | <ul style="list-style-type: none"> <li>• Grievance records</li> <li>• Traffic related incidents/accidents</li> <li>• Records of accidents, incidents and near misses.</li> </ul>                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|     | <b>Fire outbreaks</b>                            | <ul style="list-style-type: none"> <li>• Fire related incidents/accidents</li> <li>• Records of fire incidents and near misses.</li> <li>• Number of functional fire extinguishers onsite</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>• Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 5,000                     |
|     | <b>Public health issues</b>                      | <ul style="list-style-type: none"> <li>• Number of sensitization campaigns</li> <li>• Number of condoms distributed to Contractor's staff in a month</li> <li>• Number of STD cases reported to local health facilities involving encounters with Contractor's staff</li> </ul>                                                                    | <ul style="list-style-type: none"> <li>• Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 4,500                     |
|     | <b>Security and GBV concerns</b>                 | <ul style="list-style-type: none"> <li>• Number of conflicts/cases reported to the Grievance Redress Committee/Community Liaison Officer</li> <li>• Number of conflicts/cases dealt with by the Grievance Redress Committee</li> <li>• Number of crimes such as theft, defilement and rape reported, investigated, and concluded by the</li> </ul> | <ul style="list-style-type: none"> <li>• Construction site and Immediate environs</li> </ul> | Monthly   | Environmental and Social Safeguards Specialists | 3,500                     |

| No.                      | Potential Environmental and Social Impacts | Monitoring Parameters/Mean of verification                                                                                                                                                                             | Monitoring Site                                                                        | Frequency | Responsibility (Implementation/ Monitoring) | Cost Estimate/ Year (USD) |
|--------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------|---------------------------------------------|---------------------------|
|                          |                                            | police involving the Contractor's workers                                                                                                                                                                              |                                                                                        |           |                                             |                           |
| <b>OPERATIONAL PHASE</b> |                                            |                                                                                                                                                                                                                        |                                                                                        |           |                                             |                           |
|                          | <b>Workplace accidents/incidents</b>       | <ul style="list-style-type: none"> <li>Records of accidents, incidents and near misses.</li> <li>Records of PPE disbursed</li> <li>Housekeeping</li> </ul>                                                             | <ul style="list-style-type: none"> <li>Facility site</li> </ul>                        | Monthly   | HSE Manager                                 | 3,000                     |
|                          | <b>Poor labour working conditions</b>      | <ul style="list-style-type: none"> <li>Availability of copies of signed contracts</li> <li>Human Resource Management Plan/Recruitment Policy</li> <li>Complaints lodged by workers</li> </ul>                          | <ul style="list-style-type: none"> <li>Facility site</li> </ul>                        | Monthly   | HSE Manager and HR Manager                  | 4,000                     |
|                          | <b>Soil impacts and sediment transport</b> | <ul style="list-style-type: none"> <li>Observable change in turbidity of water in drains or water bodies</li> <li>Observable oil sheen in drain</li> <li>Observation of rills/gullies</li> </ul>                       | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager                                 | 5,000                     |
|                          | <b>Air and Noise Pollution</b>             | <ul style="list-style-type: none"> <li>Dust (PM2.5, PM10 and TSP)</li> <li>Emissions (NOx, SOx, TSP)</li> <li>Noise (dB) levels</li> <li>Number of complaints by residents/workers</li> </ul>                          | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 3,000                     |
|                          | <b>Waste generation and disposal</b>       | <ul style="list-style-type: none"> <li>Presence of toilets and number dustbins provided on site</li> <li>Number of times waste is lifted in a week</li> <li>Cleanliness of site/housekeeping</li> <li>Odour</li> </ul> | <ul style="list-style-type: none"> <li>Facility site and immediate environs</li> </ul> | Weekly    | HSE Manager and Community Liaison Officer   | 5,000                     |

| No. | Potential Environmental and Social Impacts       | Monitoring Parameters/Mean of verification                                                                                                                                                                                                                                                                                                                                             | Monitoring Site                                                                          | Frequency | Responsibility (Implementation/ Monitoring) | Cost Estimate/ Year (USD) |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------|---------------------------------------------|---------------------------|
|     |                                                  | <ul style="list-style-type: none"> <li>• Presence of human waste on site</li> <li>• Complaints by workers/residents</li> </ul>                                                                                                                                                                                                                                                         |                                                                                          |           |                                             |                           |
|     | <b>Traffic management/Public safety concerns</b> | <ul style="list-style-type: none"> <li>• Grievance records</li> <li>• Traffic related incidents/accidents</li> <li>• Records of all accidents, incidents and near misses.</li> </ul>                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 5,000                     |
|     | <b>Fire outbreaks</b>                            | <ul style="list-style-type: none"> <li>• Fire related incidents/accidents</li> <li>• Records of fire incidents and near misses.</li> <li>• Number of functional fire extinguishers onsite</li> </ul>                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 3,000                     |
|     | <b>Public health issues</b>                      | <ul style="list-style-type: none"> <li>• Number of sensitization campaigns</li> <li>• Number of condoms distributed to workers or placed in washrooms in a month</li> <li>• Prevalence of STD cases reported to local health facilities</li> </ul>                                                                                                                                     | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 4,500                     |
|     | <b>Security and GBV concerns</b>                 | <ul style="list-style-type: none"> <li>• Number of conflicts/cases reported to the Grievance Redress Committee/Community Liaison Officer</li> <li>• Number of conflicts/cases dealt with by the Grievance Redress Committee</li> <li>• Number of crimes such as theft, defilement and rape reported, investigated, and concluded by the police involving workers or patrons</li> </ul> | <ul style="list-style-type: none"> <li>• Facility site and immediate environs</li> </ul> | Monthly   | HSE Manager and Community Liaison Officer   | 3,500                     |

| No. | Potential Environmental and Social Impacts | Monitoring Parameters/Mean of verification | Monitoring Site | Frequency | Responsibility (Implementation/ Monitoring) | Cost Estimate/ Year (USD) |
|-----|--------------------------------------------|--------------------------------------------|-----------------|-----------|---------------------------------------------|---------------------------|
|     | <b>TOTAL COST FOR MONITORING</b>           |                                            |                 |           |                                             | <b>74,000</b>             |

## 8.0 DECOMMISSIONING

A Decommissioning and Site Closure Plan (DCP) is required to guard against the remote possibility that the temporary construction structures or infrastructure (such as hatcheries, storage) and equipment used at the operation phase are abandoned. Should such a circumstance arise, the potential would exist for impacts from abandonment of the facility such as aesthetic impacts and potential trespassing and safety concerns. This DCP is being posted to provide a guide on details of the decommissioning activities. The purpose of this conceptual DCP is to describe the general objectives for the post project land use, and the planning processes leading to development of a final DCP.

The specific objectives in managing the decommissioning process will be:

- To ensure that rehabilitation and decommissioning are carried out in a planned sequential manner, consistent with best practice;
- To ensure that agreed post-project land-use outcomes are achieved; and
- To avoid on-going liability

A Full Decommissioning Report is expected to be prepared in the event of any such activity for approval by the EPA and any other requisite state agencies.

### 8.1 Pre-Decommissioning Assessment

Prior to any decommissioning, the EPA will be notified and an assessment will be carried out to identify any potential environmental impacts that need to be addressed and mitigated in the decommissioning process.

### 8.2 Decommissioning Phase Activities

#### 8.2.1 *Dismantling and Removal of Structures and Equipment*

During decommissioning activities, the respective Planning Department and the EPA office shall have access to the site, pursuant to reasonable notice, to inspect the results of complete decommissioning.

The removal of installations, structures, and equipment would include a complete inventory of all hardware and capturing of their final operational status. Disposal of the hardware and documentation would be planned, including any environmental concerns that may dictate disposal method.

All decommissioning and restoration activities will be in accordance with all applicable state and local permits and requirements and will include the following specific activities:

- **Hardware retirement:** All power sources would be disconnected from structures and equipment before dismantling commences. Cranes and/or other machinery will be used for the disassembly and removal of structures and associated installations. These will either be transported whole for reconditioning and reuse or dissembled into salvageable, recyclable, or disposable components;

- **Foundation removal:** All foundation materials will be removed as per EPA guidelines or requirements. The remaining excavation will be filled with clean sub-grade material, compacted to a density similar to surrounding sub-grade material, and finished with topsoil;
- **Monitoring:** A monitoring and remediation period of two years immediately following the completion of any decommissioning and restoration activities will be undertaken. If agricultural impacts are identified during this period, follow-up restoration efforts will be implemented; and
- **Area restoration:** Areas where subsurface components are removed will be graded to match adjacent contours, stabilized with an appropriate seed mix, and allowed to re-vegetate naturally. All town roads, impacted by Project decommissioning activity, if any, will be restored to original condition upon completion of decommissioning.

### **8.2.2 Solid Waste Management**

All solid waste resulting from the decommissioning process will be evacuated by handlers commissioned by the Municipal Solid Waste Department.

### **8.3 Post-Decommissioning Assessment**

Removal of machinery, equipment and all other materials related to the project will be completed within one year of decommissioning. At the end of the decommissioning exercise, the EPA will be invited to carry out a post-decommissioning assessment to establish compliance with all regulatory requirements and issue a certificate to that effect. The Decommissioning and Closure Plan will be finalized and submitted to the relevant authorities for approval at least six months prior to closure of the site.

A report describing the performance of the final DCP in working towards its objectives, based on monitoring results, and the extent to which it has been complied with, will be submitted to the EPA. The report will be provided to documented stakeholders and will otherwise be publicly available on request. Files and documents used to collate information regarding closure commitments, licenses, approvals and other information concerning closure will be catalogued and maintained in accordance with standard practices.

## **9.0 CAPACITY BUILDING AND TRAINING**

### **9.1 Major Institutions**

The main institutions to be involved with the implementation of the project and to ensure sound management of the environmental and social aspects include:

- Ministry of Food and Agriculture;
- Project Coordinating Unit;
- Water Resources Commission;
- Lands Commission;
- Environmental Protection Agency;
- Regional Coordinating Council;
- Municipal Assembly;
- Fire Service; and
- NADMO.

### **9.2 Capacity Building Requirements**

Project institutions need to understand the purpose of the ESMP, their expected roles and the extent to which the ESMP will facilitate the respective statutory functions. This will engender the required collaboration for the ESMP implementation.

Competence of government i.e., the ability of active government parties to carry out their respective design, planning, approval, permitting, monitoring and implementation roles will, to a large extent, determine the success and sustainability or otherwise of the project.

The objectives and provisions of the ESMP therefore cannot be achieved in the absence of relevant competencies on environmental and social management within the Ministry of Food and Agriculture, and other stakeholders. The following sections provide recommendations on capacity building to support the program's environmental and social management objectives.

#### Identification of Capacity Building Needs

The first step in pursuing capacity building will be to identify the capacity building needs of the various stakeholders. Capacity building should be viewed as more than training. It is human resource development and includes the process of equipping individuals with the understanding, skills and access to information, knowledge and training that enables them to perform effectively. It also involves organizational development, the elaboration of relevant management structures, processes and procedures, not only within organizations but also the management of relationships between the different organizations and sectors (public, private and community).

The capacity building requirements will mostly be in the form of training workshops as follows:

(1) A training workshop on the E&S Safeguards should be organized for the major stakeholders identified above.

(2) A training workshop for the key project implementers including the Ministry of Food and Agriculture, PCU, and EPA should cover the following:

- Inclusion of environmental mitigation measures & penalties in contract documents of contractor and contractor supervision;
- Environmental screening and monitoring; and
- Public/community participation techniques and procedures.

For each group, training will be provided at different level of expertise in different areas, and would include:

- In-depth training to a level that allows trainees to go on to train others, including environmental and social procedures where relevant; and
- Sensitization or awareness-raising in which the participants are familiarized with the significance or relevance of the issues, to the extent that they can identify potential or emergent problems and request further assistance as necessary.

### **9.3 Public Engagement/Sensitization**

In order to ensure proper implementation of the project, and to avoid public agitations/litigations which could affect the project execution, the Ministry of Food and Agriculture and Metropolitan Assembly should engage/sensitize farmers and the public, particularly those whose property or livelihood may be affected. The engagement/sensitization should include the schedule of implementation, resettlement and compensation processes for any affected persons, grievance redress mechanism, traffic management, etc. The engagement/sensitization should be carried out ahead of construction works and any grievances addressed.

## 10.0 PUBLIC CONSULTATIONS AND DISCLOSURE

The ESIA preparation included preliminary stakeholder identification, some initial consultations and analysis of the requirements with key stakeholders. The key project stakeholders identified for consultations included government and non-governmental organizations. Stakeholder consultation is a process and should continue through the design stage of the project implementation phase.

### 10.1 Objectives of the consultations

The main objective of consultations with stakeholders is to discuss and provide relevant information on the project. Specifically, to achieve the following objectives:

- Provide some information about the proposed project;
- Provide opportunities for stakeholders to discuss their opinions and concerns;
- Provide and discuss with stakeholders, alternatives considered to reduce anticipated impacts;
- Identify and verify significance of environmental, social and health impacts; and
- Inform the process of developing appropriate mitigation and management guidelines.

### 10.2 Stakeholders Identified and consulted

The stakeholders identified and consulted are shown in **Table 10-1**.

**Table 10- 1: Details of stakeholders identified and consulted**

| Group of stakeholders         | Stakeholders                                            | Date of consultation | Location of consultation | Total number of persons met | Total women met |
|-------------------------------|---------------------------------------------------------|----------------------|--------------------------|-----------------------------|-----------------|
| Project Proponent/Beneficiary | Ministry of Food and Agriculture                        | 8/12/2021            | Sissala East             | 2                           | 0               |
|                               | Project Coordinating Unit                               | 18/11/2021           | Tamale                   | 2                           | 0               |
| Regulatory Institution        | Environmental Protection Agency                         | 25/11/2021           | Upper West Region        | 2                           | 0               |
| Other Government Institutions | Fire Service, Sissala East                              | 22/11/2021           | Sissala East             | 2                           | 0               |
|                               | Rural Enterprise Project, Sissala East Municipality     | 14/12/2021           | Sissala East             | 1                           | 0               |
|                               | Municipal Assembly, Sissala East                        | 14/12/2021           | Sissala East             | 2                           | 0               |
|                               | National Disaster Management Organization, Sissala East | 1/12/2021            | Sissala East             | 1                           | 0               |

|                    |                       |            |           |    |   |
|--------------------|-----------------------|------------|-----------|----|---|
| Other stakeholders | Commercial Farmer     | 21/12/2021 | Tumu      | 1  | 0 |
|                    | FBO                   | 19/12/2021 | Kong      | 3  | 1 |
|                    | Supplier              | 17/12/2021 | Tumu      | 1  | 0 |
|                    | Farmers               | 16/12/2021 | Taffiasi  | 19 | 6 |
|                    |                       | 18/12/2021 | Kong      | 18 | 6 |
|                    |                       | 7/12/2021  | Navariwie | 10 | 3 |
|                    |                       | 17/12/2021 | Sakalu    | 13 | 6 |
|                    |                       | 13/12/2021 | Chinchang | 14 | 6 |
|                    | NGO                   | 21/12/2021 | Tumu      | 2  | 0 |
|                    | Traditional Authority | 20/12/2021 | Taffiasi  | 5  | 0 |
|                    |                       | 19/12/2021 | Kong      | 6  | 0 |
|                    |                       | 7/12/2021  | Navariwie | 2  | 0 |
|                    |                       | 17/12/2021 | Sakalu    | 2  | 0 |
|                    |                       | 14/12/2021 | Chinchang | 2  | 0 |
|                    | Women's Group         | 16/12/2021 | Taffiasi  | 6  | 6 |
|                    |                       | 16/12/2021 | Kong      | 6  | 6 |
|                    |                       | 7/12/2021  | Navariwie | 3  | 3 |
|                    |                       | 17/12/2021 | Sakalu    | 6  | 6 |
|                    |                       | 13/12/2021 | Chinchang | 6  | 6 |
|                    | Youth Group           | 16/12/2021 | Taffiasi  | 7  | 0 |
|                    |                       | 16/12/2021 | Kong      | 5  | 0 |
|                    |                       | 7/12/2021  | Navariwie | 4  | 0 |
|                    |                       | 17/12/2021 | Sakalu    | 4  | 0 |
|                    |                       | 13/12/2021 | Chinchang | 5  | 0 |

### 10.3 Opinion of stakeholders about the project

All stakeholders consulted were enthused about the project and indicated their readiness to lend their support for the successful implementation of the project. Most communities were however, not aware of the project and advised that further engagement be conducted to sensitize the beneficiary and surrounding communities.

### 10.4 Concerns raised by stakeholders consulted and proposed solutions

A summary of the outcome of the initial consultations is provided below. These are mostly concerns and suggestions/interventions from institutions and individuals engaged. Details are captured in **Annex 5**.

**Project implementation and monitoring**

- Adequate funds should be should be provided to facilitate the implementation of project activities
- Periodic and regular monitoring should be conducted on the project to facilitate the implementation of project activities.
- Ensure project cycles/phases run according to schedule
- The project should be devoid of all political interferences in order to successfully reach the target beneficiaries thus ensuring the overall success of the project.

**Coordination and cooperation**

- Adequate funds should be should be provided to facilitate the implementation of project activities
- The District Assembly and other institutions like Lands Commission, Fire Service etc. should be involved in project implementation and provided resources, where necessary

**Sensitization**

- Farmers should be sensitized on the project to enable them to fully participate in the project.
- Community members should be adequately engaged and informed of project as some have no idea of the project
- Assembly officers and the beneficiary community should be well sensitized on the project to ensure smooth implementation

**Marketing and Pricing**

- More feed mills must be made available if necessary, by the project to process produce into food.
- Standard weights and prices of goods should be used as some middle men employ inappropriate means in pricing goods. A consensus should be arrived in obtaining a fixed value for produce.
- There is difficulty in obtaining a good market for produce in addition to a lack of standard prices for goods.

**Socio-economic issues**

- The livelihood of the beneficiaries should be positively impacted by the project.
- The standard of living in the community is low. The community's life is made positive by the availability of land for farming and livestock production. Provision of social amenities such as potable water, good roads, and a clinic will improve the quality of life for the community.

**Environmental issues and natural disasters**

- To cater for natural disasters such as drought and flooding, there is the need for the project to provide insurance for crops
- In order to effectively protect available water bodies, farming around water bodies should be avoided.
- Fire belts should be created around project sites to prevent the occurrence of fires.

**Financial support**

- The project should assist in providing financial support to beneficiaries.
- Most people especially women depend on Village Savings and Loans Associations (VSLA)

**Transportation**

- Adequate means of transportation should be made available to beneficiaries to facilitate the transportation of livestock and produce. Moreover, cost of transport should be reduced to suppliers.

**Provision of farm inputs and machinery**

- The project should provide farm inputs like viable seeds and procure adequate machinery to facilitate production.
- The project should supply adequate farm machinery soya bean processing machines, and combined harvesters to facilitate production of produce and also complimenting the inadequate labor in the community.
- The community has challenges with procurement of farm machinery and inputs such as tractors, combined harvesters, and feed for livestock and poultry.

**Community leadership and governance**

- Communities appoint elders/leaders through succession and by community appointment. Untrustworthy people, people with specific ailments, and those who are under the age limit are all prohibited from being elders/leaders.
- Chief and elders, religious leaders, youth groups and opinion leaders are among the key decision-makers. The assembly member serves as government representative, of which the community is satisfied with their representation.

**Land ownership, right and access**

- Majority of lands are stool lands and can be accessed through a request from the traditional authorities. There are no squatters present who may be affected by any land acquisition.
- Land-related conflicts are rare albeit

**Vulnerable groups**

- There are some women-headed households who have no livelihood support
- There are vulnerable people who may be poor or have limited access to land. There are disabled persons in the community.

**Community needs/priorities**

- Potable water, healthcare facilities, toilet facilities, good road network and a good price for farm produce are pressing needs of local communities.
- The community has challenges with changes in rainfall pattern, lack of ready market and post-harvest losses.

**10.5 Public disclosure**

AfDB requires that environmental reports for projects are made available to project affected groups, local NGOs, and the public at large. Public disclosure of EIA documents or environmental reports is also a requirement of the Ghana EIA procedures (**Annex 1**). The report should be disclosed to all relevant stakeholders to make inputs or comments. Public notice in the media should be served for that purpose.

**10.6 Grievance Redress Mechanism**

The activities of the project may generate grievances arising from the interaction between project and local authorities/community, workers and the host community etc. Some potential grievances identified and likely to occur during project implementation include:

- Complaints from the local community on the conduct of workers, especially sexual harassment and other gender-based offenses;
- Complaints related to noise, dust, traffic incidents; and
- Restriction of access to persons who otherwise were using portions of land e.g. for grazing
- Failure to consider the recruitment of local man-labour;
- Non-respect of the habits and customs of the host community by the actors of the site;
- Non-compliance with the measures or provisions contained in the ESMP

In managing grievances, a Grievance Redress Mechanism will be employed and it will include:

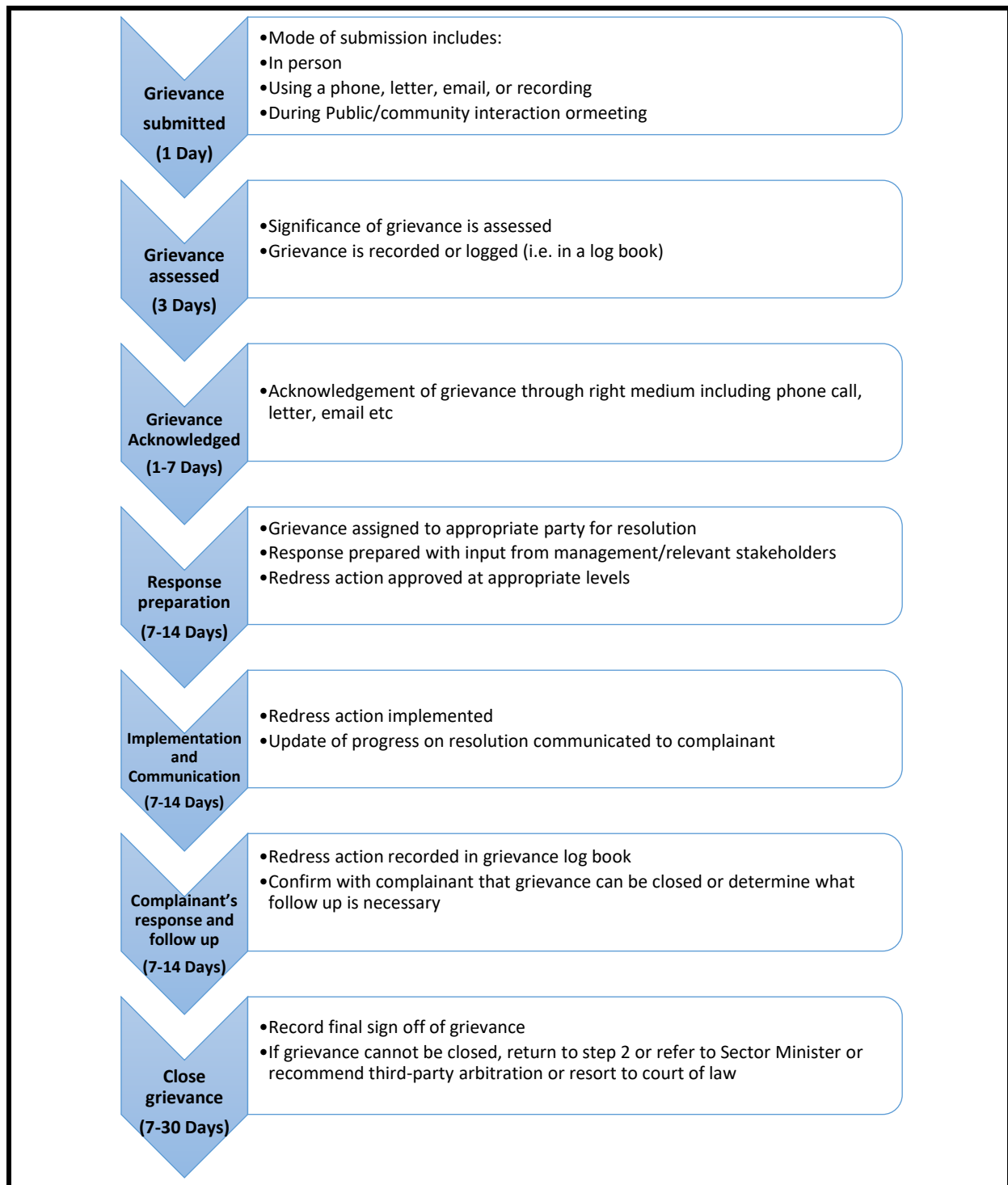
- Setting up of a Grievance Redress Committee (GRC) at the community level (11 GRCs, 1 for each community) and the district level to receive and address grievances from stakeholders.
  - At the community level, the GRC will be made up of the Assemblyman, the Chief, a Youth Leader, and a representative of the project affected persons (PAPs). The Assemblyman will be responsible for receiving grievances and subsequently liaise with the other members of the GRC to have the issue resolved.

- At the district level, the GRC will be made up of the District Planning Officer, District Lands Officer, A representative of the Agric Directorate, and District Social Welfare Officer.
- The PCU will constantly engage project affected persons through its Stakeholder and Public Disclosure Plan. This will keep the communities informed of developments on the project, including planned activities, project impacts and mitigation measures, grievance mechanism, the right to submit complaints and the compensation process.
- Building capacity of the Assemblymen to ensure they can engage the communities, record and ensure grievances are resolved.

Grievances are expected to be communicated either verbally (in a language of choice) or in writing to the GRC. Upon receipt of complaints, timely responses are expected to be given. It is expected that if grievances cannot be resolved locally, then these will be referred quickly to the District Council GRC for resolution.

Actions to be taken to address the grievance will be agreed upon by the GRC, and progress of implementation of agreed measures reported to the Local community, Metropolitan Assembly, PCU and Ministry of Food and Agriculture on a weekly and monthly basis.

A grievance management procedure indicating activities and timeframe for resolution of issues is shown in **Figure 10-1**.



**Figure 10- 1: Procedure for Grievance Redress**

**GRM operating budget**

**Table 10-2** presents the operating budget of the GRM. This budget is estimated at USD 79,000

**Table 10- 2 : GRM Implementation Budget Summary**

| Headings                                                                                       | Unit     | Quantity | Unit cost (USD) | Total cost (USD) |
|------------------------------------------------------------------------------------------------|----------|----------|-----------------|------------------|
| Reproduction and distribution of forms                                                         | Lump sum | 1        | 5,000           | 5,000            |
| Organization of GRM awareness and public campaigns in local communities                        | Session  | 20       | 2,000           | 40,000           |
| Training of members of the two (02) committees on the GRM (community level and district level) | Session  | 2        | 2,000           | 4,000            |
| Support for the operating of complaints management committees (communities and district)       | Monthly  | 60       | 500             | 30,000           |
| <b>Total cost of the implementation of GRM</b>                                                 |          |          |                 | <b>79,000</b>    |

**11.0 ESMP IMPLEMENTATION BUDGET**

Budgetary estimates are provided in **Table 11-1** below to support the implementation of the environmental and social management plan. The estimated budget is **USD 1,091,000**.

**Table 11- 1: Estimated budget to implement ESMP**

| No                                      | Activity                                                                                              | Description                                                                                                                                                          | Responsibility | Total Cost, US\$ | Source of finance |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|-------------------|
| <b>A</b>                                | <b>Institutional measures</b>                                                                         |                                                                                                                                                                      |                |                  |                   |
| 1                                       | Remuneration of the project's environmental safeguard specialist over 5 years                         | Implementation of ESMP                                                                                                                                               | PIU            | 120,000          | Project funds     |
| 2                                       | Remuneration of the project's social safeguard specialist over 5 years                                | Implementation of ESMP                                                                                                                                               | PIU            | 120,000          | Project funds     |
| 3                                       | Remuneration of the MDC environmental and social safeguard specialist over 10 months                  | Implementation of ESMP                                                                                                                                               | PIU            | 20,000           | Project funds     |
| 4                                       | Remuneration of the environmental and social safeguard specialist of the works company over 12 months | Implementation of ESMP                                                                                                                                               | PIU            | 24,000           | Project funds     |
| <b>B</b>                                | <b>Technical measures</b>                                                                             |                                                                                                                                                                      |                | <b>266,000</b>   |                   |
|                                         | <b>Specific technical measures</b>                                                                    |                                                                                                                                                                      |                |                  |                   |
| 5                                       | Awareness creation on Project                                                                         | Stakeholder engagement                                                                                                                                               | PIU/ESS/SSS    | 5,000            | Project funds     |
| 6                                       | Capacity building for key stakeholders                                                                | Training workshop on National and AfDB requirements, EIA procedures, social measures and incorporating environmental and social measures etc. in contract documents. | PIU/Consultant | 10,000           | Project funds     |
| 7                                       | Public engagement/ sensitization                                                                      | Sensitization and engagement of project affected persons                                                                                                             | PIU/Consultant | 15,000           | Project funds     |
| 8                                       | Grievance Redress Mechanism (GRM)                                                                     |                                                                                                                                                                      | PIU/ESS/SSS    | 79,000           | Project funds     |
| 9                                       | Decommissioning                                                                                       | Dismantling and removal of structures and equipment and waste disposal                                                                                               |                | 15,000           | Project funds     |
| <b>C</b>                                | <b>Monitoring and Audits</b>                                                                          |                                                                                                                                                                      |                |                  |                   |
| 10                                      | Monitoring of environmental and social parameters of the works                                        |                                                                                                                                                                      | PIU/ESS/SSS    | 267,000          | Project funds     |
| 11                                      | Annual E&S compliance Audits                                                                          | To evaluate the compliance of the implementation of the project's E&S measures (ESMP)                                                                                | PIU/ESS/SSS    | 150,000          | Project funds     |
| <b>TOTAL of the ESMP IMPLEMENTATION</b> |                                                                                                       |                                                                                                                                                                      |                | <b>1,091,000</b> |                   |

## CONCLUSION

The proposed project is expected to be implemented in accordance with relevant national laws as well as best international practices.

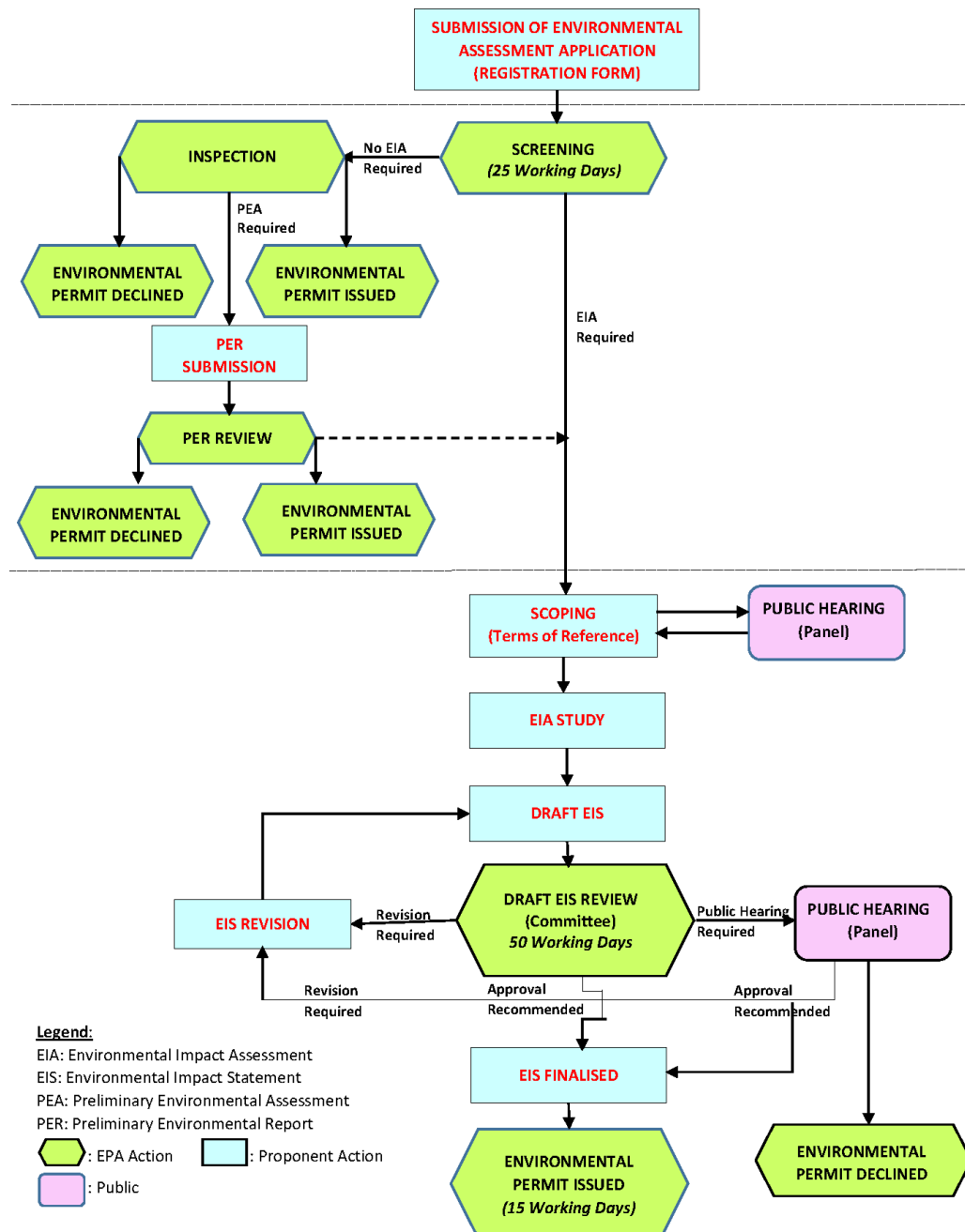
Assessments have shown that the project generally has moderate impacts on the environment and impacts could be further mitigated with the adoption of good health, safety and environment practices. Occupational, public health, safety and security issues and impacts will be properly managed to prevent any serious incident/accident or conflict. No resettlement is envisaged however, if any persons are displaced, impacts will be minimised through community sensitisation and extensive engagement with affected persons.

Identified adverse impacts will be mitigated with the implementation of the proposed mitigation measures and residual impacts contained and controlled by implementing the environmental management plan included in this report. Stakeholder concerns arising out of the public consultation and involvement process will be properly handled or addressed and further consultations will continue during the implementation stage.

The project will obviously benefit the local community through job creation, growth of businesses especially SMEs, increased knowledge and adoption of best agricultural practices etc. Some benefits will accrue to government in the form of increased revenue from taxes, reduced unemployment rate, foreign direct investment, import substitution and a general improvement in the economy. Stakeholders are therefore urged to ensure that the outlined benefits accrue to the beneficiaries which includes the local community and government.

**ANNEXES**

- Annex 1a: Administrative flow chart of environmental assessment procedure
- Annex 1b: Evidence of project registration with EPA
- Annex 2: List of environmentally sensitive areas
- Annex 3: Sample Code of Conduct
- Annex 4: Sample Grievance Form
- Annex 5: Details of Stakeholder Engagement
- Annex 6: Air Quality, Noise Assessment and Surface Water Testing at Sissala East Municipality
- Annex 7: Pictures of Engagement

**Annex 1a: Administrative flow chart of environmental assessment procedure**

**Annex 1b: Evidence of project registration with EPA**

|                                                                                   |                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>ENVIRONMENTAL PROTECTION AGENCY, GHANA</b>                                     |                                                                                    |
|  |  |
| <b>ENVIRONMENTAL ASSESSMENT REGISTRATION FORM</b>                                 |                                                                                    |
| <b>(To be completed in Duplicate)</b>                                             |                                                                                    |
| Serial No. ....                                                                   |                                                                                    |
| <b>FORM EA2</b>                                                                   |                                                                                    |
| ASSESSMENT NO:                                                                    | FILE NO:                                                                           |
| Environmental Protection Agency (Head Office)<br>P. O. Box M.326<br>Accra, Ghana  |                                                                                    |
| Tel: +233 0302 664697/8, 664223, 662465<br>Fax: +233 0302 662690                  |                                                                                    |

**Environmental Impact Assessment**  
**Registration Form**

**PROPOSED:** SAVANNAH AGRICULTURE VALUE CHAIN DEVELOPMENT PROJECT (SADP)

**Address for correspondence:** Ministry of Food and Agriculture, Savannah Agriculture Value Chain Development Project (SADP)

**Contact Person:** Felix N. Darimaani

**Position:** Project Coordinator

**Phone No.:** 0244582508

**Email:** darimaanifelix@yahoo.com

**1. Proposed Undertaking/Development:**

The Savannah Agriculture Value Chain Development Project (SADP) is being implemented by the Government of Ghana through the Ministry of Food and Agriculture to serve as part of post COVID-19 reconstruction efforts aimed at addressing disruptions in food systems in Ghana. It builds on earlier successes under the Savannah Zone Agriculture Productivity Improvement Project (SAPIP) and Savannah Investment Programme (SIP) that have so far expanded the production of maize and soybean from 80 hectares in 2018 to 14,000 hectares in 2021. This program is expected to build on the achievements made and to further expand production of rice, soybean and maize by additional 8,000 hectares by 2026. The SADP project, is being implemented in nine (9) districts in the Savannah Zone of Ghana.

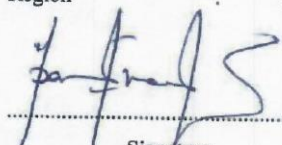
**Sector :** Agriculture

**Shareholders :** Ministry of Food and Agriculture, Ghana

**2. Proposed Site :** Nine (9) Districts in the Savannah Zone (Map attached)

**District :** Tamale Metro, Mion, Savelugu, East Mamprusi, West Gonja, Bawku West, Wa Municipal, Sissala East, and Nandom

**Region :** Northern, North East, Savannah, Upper East and Upper West

  
.....  
Signature

20-June-2022

.....  
Date

## Annex 2 List of environmentally sensitive areas

### *ENVIRONMENTAL ASSESSMENT REGULATIONS, 1999*

#### *SCHEDULE 5*

*(Regulation 30 (2))*

#### **ENVIRONMENTALLY SENSITIVE AREAS**

1. All areas declared by law as national parks, watershed reserves, wildlife reserves and sanctuaries including sacred groves.
2. Areas with potential tourist value.
3. Areas which constitute the habitat of any endangered or threatened species of indigenous wildlife (flora and fauna).
4. Areas of unique historic, archaeological or scientific interests.
5. Areas which are traditionally occupied by cultural communities.
6. Areas prone to natural disasters (geological hazards, floods, rainstorms, earthquakes, landslides, volcanic activity etc.)
7. Areas prone to bushfires.
8. Hilly areas with critical slopes.
9. Areas classified as prime agricultural lands.
10. Recharge areas of aquifers.
11. Water bodies characterized by one or any combination of the following conditions -
  - a) water tapped for domestic purposes;
  - b) water within the controlled and/or protected areas;
  - c) water which support wildlife and fishery activities.
12. Mangrove areas characterised by one or any combination of the following conditions-
  - a) areas with primary pristine and dense growth;
  - b) areas adjoining mouth of major river system;
  - c) areas near or adjacent to traditional fishing grounds;
  - d) areas which act as natural buffers against shore erosion, strong winds or storm floods.

CLETUS AVOKA

*Minister Responsible for the Environment*

Date of *Gazette* notification: 26<sup>th</sup> February, 1999.

Entry into force: 24<sup>th</sup> June, 1999

**Annex 3: Sample Code of Conduct**

All the employees of the Contractor and support staff of Supervising Consultant shall adhere to the following Code of Conduct during the execution of the project:

**1. Compliance with Applicable Laws, Rules and Regulations**

- a. All employees shall perform their duties in accordance with the Labour Act, 2003 and other applicable labour laws in Ghana.
- b. Employees/key experts will enjoy freedom of association and expression as defined in the Constitution of Ghana and expressed in Labour Act, 2003 (Act 651) and other labour laws in Ghana.
- c. The Organization will not condone the activities of employees who achieve results through violation of the law or unethical business dealings. This includes any payments for illegal acts, indirect contributions, rebates, and bribery.
- d. The Organization shall not permit any activity that fails to stand the closest possible public scrutiny.
- e. Employees uncertain about the application or interpretation of any legal requirements should refer the matter to appropriate line supervisor
- f. Workers/employees who falsify their ages will be summarily dismissed as the company does not tolerate child and forced labour.
- g. The company will not tolerate any form of child or forced labour from any sub-contractor/employee who practice forced or child labour
- h. Employees are required to report suspected cases of child or forced labour on site to GASSLIP Environmental and Social Specialist, DOVVSU or Municipal/ Metropolitan Assembly

**2. Compliance with Applicable Health and Safety Requirements**

- a. All employees' have the right and duty to ensure safe working conditions to the extent of exercising control over tools, equipment, machinery and processes and to express their views on working conditions that may affect their safety and health. Sub-contractors will do same for their employees
- b. Employees of the Contractor shall be responsible for removing themselves from danger as much as possible whenever they have good reason to believe that there is an imminent and serious danger to their safety or health. They should have the duty so to inform their supervisor immediately.
- c. Employees/key experts will be provided with the appropriate protective gear for the operations or activities and request for same before engaging in any activity associated with the works.
- d. No worker shall be allowed to undertake any work without wearing approved protective clothing/gear.
- e. Workers shall use and take care of personal protective equipment, protective clothing and facilities placed at their disposal and not misuse anything provided for their own protection or the protection of others
- f. First time offenders who are not in the appropriate protective gear will receive a verbal caution, second time offenders will receive a formal written caution, while multiple offenders will receive sanctions ranging from suspensions to dismissal.
- g. Except in an emergency, employees, unless duly authorised, should not interfere with, remove, alter or displace any safety device or other appliance furnished for their

protection or the protection of others, or interfere with any method or process adopted with a view to avoiding accidents and injury to health.

- h. Every employee shall take reasonable care for their own safety and health and that of other persons who may be affected by their acts or omissions at work;
- i. Workers shall report to their immediate supervisor, and Health and Safety Officer, any situation which they believe presents a risk and which they cannot properly deal with themselves;
- j. Damaged or faulty electrical equipment such as power sockets, leads and appliances are removed from service.
- k. Damaged or faulty equipment should be replaced, or repaired by a qualified person as soon as possible.
- l. Power points should be protected by safety-shutters, or all vacant power points be covered by plastic plug protectors.
- m. Electrical appliances and leads should be kept away from water.
- n. All machines and vehicles should be turned off when not in use
- o. All employees shall comply with all the safety and health measures prescribed by the employer. Employees should not operate or interfere with plant and equipment that they have not been duly authorised to operate, maintain or use.
- p. Employees should not sleep or rest in dangerous places such as scaffolds, railway tracks, garages, or in the vicinity of fires, dangerous or toxic substances, running machines or vehicles and heavy equipment.
- q. Supervisors should not assign employees to undertake activities that the later do not have necessary competence, training or certification or that has not been stated in their contract with the Company.
- r. Employees should not undertake any assigned activity for which you do not have necessary competence, training or certification or that has not been stated in their contract with the Company.
- s. Every employee is encouraged to contribute by integrating environmental sustainability issues as they relate to our industry into our business planning, strategies and decision-making.
- t. Employees shall avail themselves for all OHS, HIV/AIDS Gender Based Violence, Emergency Preparedness Training/Sensitization Programmes organized under the project.
- u. All Company employees should strive to conserve resources and reduce waste through re-use and other energy conservation measures.

### **3. Use of Illegal Substances**

- a. No employee/key expert/sub-contractor shall report to work under the influence of alcohol or any substance considered as illegal under the laws of Ghana including marijuana.
- b. No employee shall smoke, consume alcohol or illegal substances while on duty, including lunches and during overtime meals, or on company property.
- a. Officers and directors may authorize, in advance, the consumption of alcohol for special occasions or for certain business meetings as long as such use is limited and does not violate other legal requirements.
- b. No employee shall under any circumstance engage in any work related to the organization under the influence of Alcohol or illegal substances even if consumption is permitted under the exception described above.
- c. Employees who violate this smoking and alcohol conduct standard may have their contract terminated.

#### 4. Non- Discrimination

- a. Discrimination against any job applicant or employee on the grounds of colour, race, religion, age, nationality, sex, marital or family status, ethnic affiliation, pregnancy, sexual orientation, disability or other reason is prohibited.
- b. In certain cases, however, the requirements of safety regulations relating to specific positions/activities within a construction business will take precedence over clause 4(a).
- c. We do not employ any person below the legal minimum age (18 years) and will require commitments from suppliers and subcontractors to refrain from such practices
- d. Workers are not to undertake any assigned activity for which they do not have necessary competence, training or certification or that has not been stated in their contract with the Company.
- e. Recruitment, job transfer and progression, remuneration and training and award of discretionary bonuses when applicable are determined solely by the application of objective criteria, fair and unprejudiced opinion, personal performance and merit.
- d. Recruitments, transfers, training, maternity leave and standard terms and conditions will be done in accordance within line Ghana Labour laws.
- e. Employees who perceive that they have been discriminated against can seek redress through their supervisor, Environmental, Health and Safety Officer, management and/or the Ministry of Labour and Social Welfare

#### 5. Interaction with Community

- a. The Company strives to cultivate a local identity in each of its host communities by setting good corporate citizenship standards, while respecting local sensitivities.
- b. The Company will regularly contribute to the economic and social development of communities, and expects all employees to promote human rights and respectful community involvement anywhere it operates.
- c. Employees should comply with the norms, laws, rules and regulations applicable to the host communities except in cases where they are in conflict with that of Ghanaian laws.
- d. In a case where an employee perceives that the laws, rules and regulations of host communities are in conflict with that of the company, employees are to refer such cases to their supervisor, Environment, Health and Safety Officer or manager for further clarification at the Ministry of Labour and Social Security

#### 6. Sexual Harassment

*Sexual Harassment would be considered as unwelcome conduct of a sexual nature which makes a person feel offended, humiliated and/or intimidated. It includes situations where a person is asked to engage in sexual activity as a condition of that person's employment, as well as situations which create an environment which is hostile, intimidating or humiliating for the survivor*

- a. Sexual harassment is unlawful.
- b. This company does not tolerate sexual harassment in any form.
- c. Every employee has a responsibility to ensure that sexual harassment does not occur.
- d. No employee shall under any circumstance sexually engage another either by the use of words or actions. Some acts that may be considered as sexual include;
  - an unwelcome sexual advance
  - a request for sexual favours

- *unwelcome comments about someone's sex life or physical appearance*
  - *sexually offensive comments, stories or jokes*
  - *displaying sexually offensive photos, pinups or calendars, reading matter or objects*
  - *sexual propositions or continued requests for dates*
  - *physical contact such as touching or fondling, or unnecessary brushing up against someone*
  - *Indecent assault, defilement or rape (these are criminal offences).*
- e. Any employee who believes he or she has been a target/survivor of sexual harassment is encouraged to inform the offending person orally or in writing that such conduct is unwelcome and offensive and must stop or to report the unwelcome conduct as soon as possible to a supervisor, management or the environmental and social officer of GASSLP representative on the Project Grievance Redress Committee or the nearest DOVVSU or Police Station
  - f. Reports of sexual harassment will be treated promptly, seriously and confidentially.
  - g. Complainants have the right to determine how a complaint will be treated and knowledge of the outcome of investigations.
  - h. Anyone found to have sexually harassed another person will be handed over to the Family Support Unit of the Ghana Police Force.
  - i. No employee will be treated unfairly as a result of making a complaint of sexual harassment. Immediate disciplinary action will be taken against anyone who victimizes or retaliates against someone who has made a complaint of sexual harassment.
  - j. For the purposes of reporting and dealing with sexual harassment and crimes, the Company will provide a hot line to a management level personnel for reporting cases of sexual abuse and harassment.
  - k. Rape, defilement and assault cases shall be reported to FSU of the Ghana Police Force by survivor or other employees'

## **7. Violence or Exploitation**

- a. No employee shall bear any weapon on site unless he/she has been authorized and have a legitimate business reason to do so. Even so, this will have to be with the permission of the appropriate supervisor, manager and conformity with the laws of Ghana.
- b. The company is committed to maintaining a safe and secure workplace and working environment. Acts or threats of physical violence, intimidation, harassment or coercion, stalking, sabotage, and similar activities are not tolerated.
- c. Employees who engage in acts or threats of violence, outside of self-defense, shall be dismissed and handed over to the Police Station.
- d. Employees are expected to treat all individuals with respect, tolerance, dignity and without prejudice to create a mutually respectful and positive working environment.

## **8. Protection of Children**

- a. As much as possible, employees' are to avoid bringing any person under 18 to work on the project site) unless with permission from Environment, Health and Safety Officer.
- b. Every employee shall himself be responsible for the safety and wellbeing of any person under age 18 years brought to work by them. *Physical contact with children can be misconstrued both by the recipient and by those who observe it, and should occur only when completely nonsexual and otherwise appropriate, and never in private.*

- c. One-on-one meetings with a child or young person are best held in a public area; in a room where the interaction can be (or is being) observed; or in a room with the door left open, and another employee or supervisor is notified about the meeting.
- d. Avoid any covert or overt sexual behaviors with children on site. This includes seductive speech or gestures as well as physical contact that exploits, abuses, or harasses.
- e. Employees are to provide safe environments for children and youth at all times on site

#### **9. Sanitation Requirement**

- a. The company shall provide and maintain sanitary facilities (according to building regulations) for all employees to ensure their total health and safety. All such facilities shall be labelled with inscription in English for the understanding of every employee.
- b. Every employee/key expert shall be responsible for the appropriate use of sanitary facilities including toilets, bathrooms and refuse bins/skip containers where provided.
- c. No employee shall resort to other inappropriate means of defecation or urination (open defecation or indiscriminate disposal of refuse or urination on the company's compound or project site) apart from what has been prescribed by the company.
- d. Any act of indecency with respect to the use of sanitary facilities shall attract punitive actions including suspensions or even dismissals.

#### **10. Avoidance of Conflict of Interest**

- a. The Company expects that employees will perform their duties conscientiously, honestly, and in accordance with the best interests of the Organization.
- b. Employees/key experts must not use their positions or the knowledge gained as a result of their positions for private or personal advantage.
- c. Regardless of the circumstances, if employees sense that a course of action they have been pursued, or are presently pursuing, or are contemplating pursuing may make it difficult to perform the work objectively, they should immediately communicate all the facts to their supervisor.
- d. An Employee or a member of his or her immediate family shall not receive improper personal benefits as a result of his or her position in the Company.
- e. Any situation that involves, or may reasonably be expected to involve, a conflict of interest with the Company should be disclosed promptly to supervisors/ managers.

#### **11. Protection and Proper Use of Property**

- a. All employees unless otherwise directed are responsible for the proper acquisition, use, maintenance and disposal of company assets (e.g., materials, equipment, tools, real property, information, data, intellectual property and funds) and services. Acquisition of assets should be in compliance with procurement standards of the company.
- b. Any act of theft, carelessness, and waste on the part of an employee shall attract sanctions including the termination of one's work contract.
- c. Every employee shall do their part to protect the company's assets and ensure their efficient use.
- d. Unless otherwise permitted by management, Company guidelines and procedures, the appropriation of Company property by employees for personal use, or for resale is strictly prohibited.
- e. Similarly, you are not permitted to use your authority over other employees to use Company resources for personal benefit.

- f. On termination of and at any other time during your employment when requested you must hand over Company's assets and records stored in whatever format or medium.
- g. The Company strictly prohibits any access, usage or disclosure of employees' personal data without legitimate authorization. Employees should note that the Company reserves the right to retrieve their e-mails transmitted via the Company e-mail accounts and to monitor your use of the Internet.
- h. Every employee shall use company assets only for legal and ethical activities.

## **12. Report of Violation of Code of Conduct**

- a. Employees should promote ethical behavior and encourage other employees to talk to supervisors, managers or other appropriate personnel when in doubt about the best course of action in a particular situation.
- b. In order to protect our organization from unethical or illegal activity, it is your duty and obligation at all times to be watchful of the practices that you see occurring around you, to take reasonable steps to prevent or detect improper conduct, and to report any suspicion of fraudulent, abusive, unethical or illegal activity.
- c. All reports of misconduct or unethical behavior, conflict of interest, or illegal activity are to be handled as confidential and be treated seriously and discreetly.
- d. Employees may report anonymously should that be their preference.
- e. In the event of a grievance being raised to a manager relating to discriminatory behaviour or harassment, the manager must notify Human Resources immediately, irrespective of how trivial the complaint may appear.

## **13. Non-Retaliation**

- a. The company will not tolerate any act of retaliation against anyone who, in good faith, reports known or suspected unethical or illegal misconduct, seeks advice, raises a concern, or provides information in an internal or external investigation or legal proceeding pertaining to the company.
- b. Allegations of retaliation will be investigated, as appropriate.
- c. Acts of retaliation (which may include firing or laying off, demoting, denying overtime or promotion, disciplining, denying benefits, failing to hire or rehire, intimidation or making threats) may lead to disciplinary action against the person responsible for the retaliation, up to and including termination of contract.
- d. Any employee who believes he/she has experienced retaliation, should report to his/her supervisor, manager or the Environmental and Social Officer GASSLIP.
- e. Any false accusation of retaliation would attract disciplinary actions even to the extent of termination of contract.

## **Implementation of Code of Conduct**

- a. The Environment, Health and Safety Officer of the Contractor will be responsible for implementing and enforcing the Code of Conduct, while monitoring
- b. The following measures will be adopted to implement the Code of Conduct:
  - The Consultant will ensure that all employees/key experts and sub-contractors are given copies of the Code of Conduct for reference.
  - All employees on the assignment will be made to sign the Code of Conduct.

**Annex 4: Sample Grievance Form****GRIEVANCE REGISTRATION FORM (FORM A) – For Complainant**Confidentiality Required: Yes ☐ No: ☐

Name (Complainant) Optional:.....

Contact Information (house number/ mobile phone):.....

Nature of Grievance or Complaint:.....

Details of Grievance:.....

.....

.....

.....

.....

.....

.....

Name (Receiver):..... Signature:..... Date:.....

Name (Filer):..... Signature:..... Date:.....

Relationship of Filer to Complainant (if different from Complainant):

.....

.....

## Annex 5: Details of Stakeholder Engagement

| Stakeholder/<br>Institution/ Location               | Contact Person(s)                          | Role                                                    | Contact No.              | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------|--------------------------------------------|---------------------------------------------------------|--------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Government Institutions – Category A</b>         |                                            |                                                         |                          |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Ministry of Food and Agriculture – Sissala East     | Samuel Akuetteh<br>Tergu Eric              | MAO – Crops<br>MAO - Livestock                          | 0249962951<br>0207416158 | 8/12/2021  | <ul style="list-style-type: none"> <li>• <b>Bush Fires</b> - The Department of Agriculture is concerned about the frequent issues of bush fires that is rampant within the district. The project should have a project to engage and train the farmers on bushfire management.</li> <li>• <b>Indiscriminate disposal and use of agrochemicals</b> – There have been a rise in indiscriminate usage of agrochemicals within the district, the project should provide proper provisions to train farmers on proper usage and disposal of agrochemicals.</li> <li>• <b>Environmental Management</b> – The project should have a proper environmental management plan to mitigate any probable associated risks from the project that might put the communities and the environment at risk.</li> <li>• <b>Access to Farm Inputs</b>– There should be a proper program to help make easy the process of acquiring various farm inputs such as fertilizers and seeds. Subsidies should also be made available for farmers in acquiring farm inputs.</li> </ul> |
| Environmental Protection Agency – Upper West Region | Salifu Wahabu<br>Abdul-Rashid Zakaria      | District Director/ Area Head<br>APO                     | 0501301605<br>0247807245 | 25/11/2021 | <ul style="list-style-type: none"> <li>• <b>Biodiversity and Environmental Management</b> – the project should incorporate an integrated environmental management plan, which will seek to preserve the biodiversity of the various impacted communities.</li> <li>• <b>Proper Training</b> – In the implementation phase of the project, the various selected farmers should be given proper training on handling, disposal and application of agrochemicals in order to preserve the fertility of the soil.</li> <li>• <b>Air pollution</b> – The project should place the various poultry farms at locations in order to prevent air pollution of various settlements and in cases where poultry farms are located in settlements, the design should reduce the pollution of ammonia from the farms into houses.</li> </ul>                                                                                                                                                                                                                            |
| Municipal Assembly – Sissala East District          | Duwie Jua Mumuni<br>Dramani<br>Awal Ishawu | Municipal Planning Officer<br>Assistant Planning office | 0557780088<br>0244182325 | 14/12/2021 | <ul style="list-style-type: none"> <li>• <b>Land Acquisition</b> – Litigation free lands should be considered first for the implementation of the project in order to prevent any future disputes over the ownership of the used land. In cases where any agreements are made with land owners, there should be written contracts signed to make the agreements binding.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Stakeholder/<br>Institution/ Location                                      | Contact Person(s)                                 | Role                                           | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------|-------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                            |                                                   |                                                |             |            | <ul style="list-style-type: none"> <li>• <b>Bush Fire</b> – The programme should involve and teach farmers in wildfire management should be included in the project. Fire belts should be placed around various farms to prevent them from ravaging fires.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Rural Enterprise Project -Sissala East Municipal                           | Akorba Theophilus                                 | Director                                       | 0248987151  | 14/12/2021 | <ul style="list-style-type: none"> <li>• <b>Land Availability</b> – In the process of the land acquisition the project should target the land with the least possibility of land litigation.</li> <li>• <b>Availability of Funds</b> – Sufficient funds should be made available for the entire cycle of the project, the process of clearing virgin lands for commercial farming requires intensive, continuous supply of funds in order for the project to be a success.</li> <li>• <b>Training Programs</b> – There should be programs designed for the various selected farmers to train them in various agricultural best practises and fire management practices to handle bush fires.</li> </ul> |
| National Disaster Management Organization (NADMO) – Sissala East Municipal | Issahaku Issah                                    | Director                                       | 0547844202  | 25/11/2021 | <ul style="list-style-type: none"> <li>• <b>Beneficiary Training</b> -The various beneficiary farmers should be given the necessary training on good agricultural practises to make their work profitable.</li> <li>• <b>Disaster Volunteer training</b> – various disaster volunteer groups should be set up in the various beneficiary towns, these volunteers will be trained in various disaster management practises.</li> </ul>                                                                                                                                                                                                                                                                   |
| Fire Service – Sissala East Municipal                                      | Tierku Gorden<br>Abdul Uzeru                      | Deputy Commander<br>Anti-Bush Fire Coordinator | 0243275241  | 22/11/2021 | <ul style="list-style-type: none"> <li>• <b>Beneficiary Training</b> -The various beneficiary farmers should be given the necessary training on good agricultural practises and also provide training for the farmers on bush fire management.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Private Institutions – Category B</b>                                   |                                                   |                                                |             |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FBO - Kong                                                                 | Abass Aminatu<br>Bashiru Jalia<br>Afisatu Iddrisu | Secretary<br>Organizer<br>Chairperson          | 0242041702  | 19/12/2021 | <ul style="list-style-type: none"> <li>• <b>Deforestation</b> - There will be considerable amount of trees that will be cut down to make way for the commercial farms, the project should include afforestation plans to replace all the trees that will be cut down.</li> <li>• <b>Bush Fire</b> – farmers and communities have to be educated on bush fires and bush fire management and the harm the fires can create, they should also be educated on fire belt creation.</li> <li>• <b>Security Assurance</b> – Provision of security assurance to the beneficiary farmers to protect their farms from cattle invasions.</li> </ul>                                                                |

| Stakeholder/<br>Institution/ Location | Contact Person(s)              | Role                              | Contact No.              | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------|--------------------------------|-----------------------------------|--------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Commercial Farmer -<br>Tumu           | Kasim Adams                    | Farm Owner                        | 0242856244               | 21/12/2021 | <ul style="list-style-type: none"> <li>• <b>Acquisition of Farm Inputs</b> - Farm inputs (seeds and fertilizers) are often scares in various communities; the project should include the provision of such inputs into the implantation part of the project.</li> <li>• <b>Herdsmen Engagement</b> – commercial farmers have had altercations with cattle herdsmen in the past due to destruction of farms, the project has to engage the herdsmen as well as the community leaders to find ways to implement the project without incidents from cattle herdsmen.</li> <li>• <b>Mechanisation</b> – farm machines are expensive to acquire to various small scale and commercial farmers. The project should provide the mechanised tools at subsidised rates to help enhance the work of farmers.</li> </ul> |
| Commercial Farmer -<br>Tumu           | Sumaila Doho                   | Manager                           | 0243830056               | 20/12/2021 | <ul style="list-style-type: none"> <li>• <b>Ecosystem Preservation</b> – the project is expected to be accompanied by large volumes of tree cutting, there should be included a portion where necessary environmental conservation measure is included to preserve the various ecosystems that might be affected by the tree cutting processes and afforestation plans should be included to replace the felled trees.</li> <li>• <b>Bush Fires</b> – Commercial farmers stand the risk of loss due to bush fires relative small-scale farmers. Community sensitization should be included in the project on bush fire management and fire belt creation to provide support in case of such emergencies.</li> </ul>                                                                                           |
| Supplier- Tumu                        | Haruna Basuglo                 | Owner                             | 05052645636              | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Cost and Quality of Farm Inputs</b> – The project should make available subsidized farms inputs (seeds and fertilizers) readily available to commercial farmers. The quality of these inputs also has to assured in order for farmers to obtain the best yields for their farms.</li> <li>• <b>Bush fires</b> - Farmers and communities must be taught on bushfires, bushfire management, and the damage that bushfires may do, as well as how to establish fire belts.</li> </ul>                                                                                                                                                                                                                                                                                |
| NGO - Tumu                            | Dintie Tayiru<br>Juawie Forkor | Executive Director<br>M&E Officer | 0547205089<br>0241271976 | 21/12/2021 | <ul style="list-style-type: none"> <li>• <b>Land Acquisition</b> - To minimize concerns of taking back their land after a few years, land owners should be well educated on the agreements they sign before leaving their holdings.</li> <li>• <b>Fulani Herdsmen</b> - The initiative must educate the community on how to communicate with the fulanis that live nearby in order to avoid sending cattle to destroy people's fields.</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |

| Stakeholder/<br>Institution/ Location         | Contact Person(s) | Role        | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------|-------------------|-------------|-------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                   |             |             |            | <ul style="list-style-type: none"> <li>• <b>Bush Fires</b>- Community sensitization should be included in the project on bush fire management and fire belt creation to provide support in case of such emergencies.</li> <li>• <b>Farm Mechanisation</b> - To improve farm operations, the government and other organizations should make necessary and appropriate mechanisation available at affordable costs.</li> <li>• <b>Agrochemicals Usage</b> - To avoid food poisoning and damage to farmers' health, farmers should be instructed in the appropriate use and handling of agrochemicals.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Community and Focus Group – Category C</b> |                   |             |             |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Traditional Authority -<br>Taffiasi           | Doho Sumaila      | Assemblyman |             | 20/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondent welcomes the project as it will engage community members in economic activities.</li> <li>• <b>Land Ownership</b> – The community land is made up of only stool lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained through the chiefs. The respondent is not aware of some squatters on stool lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, animal rearing and shear-nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed erratic rainfall pattern, high cost of farm inputs, pest outbreak, lack of transportation and unavailable market for farm produce as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1500 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community are Sissala, Fulani, Frafra, Grusi and Asantes..</li> <li>• <b>Migrant Population</b> – There are migrant groups in the community which are made up of Frafra from Bolgatanga and Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled and women.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Religion</b> – The community is mostly composed of Muslims (94%), Traditionalist (2%) and Christians (4%).</li> <li>• <b>Women Headed Households</b> – There are about 20 women that lead households in the community.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program and some wealthy people support for them at most times of the year especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlords and the unit committee. The assemblyman represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage and succession for chiefs. People are prevented from being leaders when their behaviour is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the VSLA group which is engaged in savings and loans, the Gugoyila group which drums and dances during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks, but network connectivity is very low.</li> <li>• <b>Quality of Life</b> – The quality of life is generally considered generally good in the community with the high points of the community include food and land availability.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                          | Role                                              | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------|-------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |                                                                                            |                                                   |             |      | <ul style="list-style-type: none"> <li>• <b>Community Needs/Priorities</b> – The project should include provision of farm inputs, access to potable water, provision of good health care and improved access to telecommunication services. The community prioritises improvements in their health care, farming and education.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Traditional Authority -<br>Taffiasi   | Solomon<br>Bachungachin<br><br>Salifu Bapaata<br><br>Sulemani Narima<br><br>Yakubu Nanboro | Chief<br><br>Elder<br><br>Elder<br><br>Chief Imam |             |      | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will engage community members.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, animal rearing and shear-nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed difficulty to access to tractor services, unavailability of farm inputs and climate change as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1800 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community are Sissala, Fulani, Frafra, Grusi and Asantes..</li> <li>• <b>Migrant Population</b> – There are migrant groups in the community which are made up of Frafra from Bolgatanga also the Grusi and Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled and women.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (3%) and Christians (7%).</li> <li>• <b>Women Headed Households</b> – There are about 30 women that lead households in the community.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program and some wealthy people support for them at most times of the year especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders and the unit committee. The assemblyman represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage and succession for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the VSLA group which is engaged in savings and loans, the Gugoyila group which drums and dances during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks, but network connectivity is very low.</li> <li>• <b>Quality of Life</b> – The quality of life is generally considered average in the community with the high points of the community include food and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include improved telecommunication, access to farm inputs, access to tractor services and provision of</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                                 | Role                                                            | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                                                                                                   |                                                                 |             |            | irrigation facilities. The community prioritises improvements in their health care, farming and education.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Womens Group -<br>Taffiasi            | Musah Hawa<br>Hawa Braimah<br>Ajara Miliru<br>Abudu Memunatu<br>Muliru Muliratu<br>Amadu Salamatu | Chairwoman<br>Member<br>Member<br>Organizer<br>Member<br>Member |             | 16/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will engage community members and will provide employment.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, animal rearing, firewood collection and shear-nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed difficulty to access to tractor services, lack of water for dry season farming, unavailability of farm inputs and climate change as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1900 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community are Sissala, Fulani, Frafra, Grusi and Asantes.</li> <li>• <b>Migrant Population</b> – There are migrant groups in the community which are made up of Frafra from Bolgatanga, Asante from Kumasi also the Grusi and Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled and women.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (3%) and Christians (7%).</li> <li>• <b>Women Headed Households</b> – There are about 30 women that lead households in the community.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program and some wealthy people support for them at most times of the year especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlords, unit committee and the Imam. The assemblyman represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage and succession for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the VSLA group which is engaged in savings and loans, the Gugoyila group and the Janga group which drums and dances during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound within the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks, but network connectivity is very low.</li> <li>• <b>Quality of Life</b> – The quality of life is sometimes hard since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, provision of affordable farm inputs and availability of tractor services. The community prioritises improvements in their farming, water and health care.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                                                 | Role | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Youth Group - Taffiasi                | Tafali Fuseini<br>Narima Fuseini<br>Baana Fuseini<br>Luri Sumaila<br>Wuli Aziz<br>Batong Issali<br>Nabong Fuseini |      |             | 16/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are aware of the project through a friend.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents did not receive any prior information about the projects. The respondents are aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will create jobs for the youth.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, animal rearing, and shear-nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed lack of water, poor road network, low farm inputs and bush fires as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 2000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community are Sissala, Fulani, Frafra, Grusi and Asantes.</li> <li>• <b>Migrant Population</b> – There are migrant groups in the community which are made up of Frafra from Bolgatanga, Kasim from Navrongo also the Grusi and Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (2%) and Christians (8%).</li> <li>• <b>Women Headed Households</b> – There are about 20 women that lead households in the community.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program, farm inputs are provided</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role   | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|                                       |                   |        |             |            | <p>by WARCO and some wealthy people support them at most times of the year especially during the farming season (August-September).</p> <ul style="list-style-type: none"> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders, and unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the youth group involved in preventing child labour and community anti-violence, the Gugoyila group and the Janga group which drums and dances during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival along with the Christian and Islamic festivals. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks, but network connectivity is very low.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, provision of affordable farm inputs and availability of tractor services. The community prioritises improvements in their farming, education and health care.</li> </ul> |
| Farmer - Taffiasi                     | Ali Bein          | Farmer |             | 16/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project through a friend.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent did not receive any prior information about the project. The respondent is aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will engage the community members and provide employment.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, animal rearing, and shear-nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed expensive farm inputs and inadequate tractor services as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 2000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community are Sissala, Fulani, Frafra, Grusi and Asantes.</li> <li>• <b>Migrant Population</b> – There are migrant groups in the community which are made up of Frafra from Bolgatanga, Ashanti from Kumasi, Kasim from Navrongo also the Grusi and Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (92%), Traditionalist (3%) and Christians (5%).</li> <li>• <b>Women Headed Households</b> – There are about 30 women that lead households in the community.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program, farm inputs are provided by WARCO and some wealthy people support them at most times of the year especially during the farming season (June-August).</li> </ul> |

| Stakeholder/<br>Institution/ Location          | Contact Person(s)                                 | Role                               | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                                |                                                   |                                    |             |            | <ul style="list-style-type: none"> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlords, Imam and unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the youth group which helps it members in farming activities and the Gugoyila group drums and dances during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jinbanti festival. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks, but network connectivity is very low.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of teacher quarters, provision of maternity wards and availability of tractor services. The community prioritises improvements in their education, farming and health care.</li> </ul> |
| Women Group –<br>Sifaasi Women Group<br>(Kong) | Iddrisu Hafisutu<br>Abass Aminatu<br>Adisah Kasim | Chairperson<br>Secretary<br>Member |             | 18/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The chairperson was mad of the project during a ASUDEF meeting.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondent is aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                | Role                                       | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                                       | Basiru Jalia<br>Basiru Ajara<br>Muhammed Rashida | Organizer<br>Member<br>Assistant Secretary |             |      | <ul style="list-style-type: none"> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will engage the community members and provide employment especially for women and the youth.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, and petty trading.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed poor road network, climate change and capital for farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic group in the community is the Sissalas.</li> <li>• <b>Migrant Population</b> – There are no migrant people within the community.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (85%), Traditionalist (5%) and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are about 20% of the households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there is the LEAP program, farm inputs are provided by WARCO and VSLA also provides support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders, magazias, assembly person, and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazias.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role   | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|                                       |                   |        |             |            | <ul style="list-style-type: none"> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the Kong dancing group which dances during festivities.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the paragbelle and Naabagbelle festivals. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through pumps and dams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of avenues for financial independence and more employment for the youth and women. The community prioritises improvements in their farming, water, and education.</li> </ul> |
| Farmer - Kong                         | Alhassan Illiasu  | Farmer | 0243138877  | 18/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will expand farmers, increase income and provision of employment for community members.</li> <li>• <b>Land Ownership</b> – The community land is made up of individual (95%) and stool lands (5%).</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, and petty trading.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed poor road network, climate change and lack of access to input as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1600 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic group in the community is the Sissalas.</li> <li>• <b>Migrant Population</b> – Migrants are not many in the community but the few ones belong to the Kassina, and Frafra ethnic groups.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (85%), Traditionalist (5%) and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are about 10% of the households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, unit committee members, assembly person, and magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazias.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                 | Role                                                   | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                                       |                                                                                   |                                                        |             |            | <ul style="list-style-type: none"> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the Kong dancing group which dances during festivities.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the paragbelle and Naabagbelle festivals. The community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through pumps and dams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include services for dry season, farming, good road network and good health care. The community prioritises improvements in their farming, education and health care.</li> </ul> |
| Youth Group - Kong                    | Baldu Tuu Illiasu<br>Vugworun Maruf<br>Dimber Hakim<br>Dauda Faruk<br>Karim Majid | Chairperson<br>Organizer<br>Member<br>Member<br>Member |             | 18/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondents are aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will serve as income generator for the youth. The respondents want the youth to be included in the project.</li> <li>• <b>Land Ownership</b> – The community land is made up of individual (90%) and stool lands (10%).</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, and petty trading.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate capital for farming, poor road network and fluctuation of commodity prices as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 3000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic group in the community is the Sissalas.</li> <li>• <b>Migrant Population</b> – Migrants are not many in the community but the few ones belong to the Kassina, Dagabas and Frafra ethnic groups.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (4%) and Christians (6%).</li> <li>• <b>Women Headed Households</b> – There are about 2% of the households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, unit committee members, assembly person, and magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazias.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the Kong dancing group which dances during festivities.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)         | Role  | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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|                                       |                           |       |             |      | <ul style="list-style-type: none"> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the paragbelle and Naabagbelle festivals. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through pumps, well and dams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, LPG and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of job opportunities, good road networks, and potable water. The community prioritises improvements in their farming, water and education.</li> </ul> |
| Traditional Authority -<br>Kong       | Zakaria Mahamudu<br>Savei | Chief | 19/12/2021  |      | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it provides the community with job opportunities.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owed lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, and petty trading.</li> </ul>                                                                                                                                                                                                                                  |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate capital for farming, poor road network, unavailability of farm inputs and erratic rainfall as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 2500 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Sissala, Dagaaba, Kasim, and the Frafra.</li> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of dagaabas from Nandom , Frafras from Blgatanga and Kasims from Navrongo.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (2%) and Christians (8%).</li> <li>• <b>Women Headed Households</b> – There are about 70 women that head households.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chiefs, elders, landlords and the unit committee members. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the men youth group, which supports it members in communal farm work. The community also has the Kong dancing group which drums and dances during festivities.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the paragbelle festival. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role         | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                       |                   |              |             |            | <ul style="list-style-type: none"> <li>• <b>Healthcare</b> – The community has a CHIPS compound withing the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through pumps, well and dams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, LPG and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of affordable fertilizers and adequate tractor services. The community prioritises improvements in their education, farming and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                   |
| Assembly Person -<br>Kong             | Dinwiah Jonas     | Assembly man |             | 19/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it provides the community with job opportunities.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owed lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and petty trading.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed late access to farm input, high cost of fertilizer, erratic rainfall and inadequate funds to expand farm as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 2000 people.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Sissala, Dagaaba, Kasim, and the Frafra.</li> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of dagaabas from Nandom , Frafras from Bgatanga and Kasims from Navrongo.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), Traditionalist (4%) and Christians (6%).</li> <li>• <b>Women Headed Households</b> – There are about 50 women that head households.</li> <li>• <b>Indigenous Groups</b> – There are individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June - September).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chiefs, elders, landlords, magazia and the unit committee members. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when their character is not acceptable.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group which contributes money to help members. The community also has the Kong dancing group which drums and dances during festivities.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the paragbelle festival. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound within the community, with the closet clinic located in Tumu.</li> <li>• <b>Educational Facilities</b> – The educational facilities present community are a primary and JHS in the community with the closet SHS located in Tumu.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                               | Role                           | Contact No. | Date      | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                       |                                                 |                                |             |           | <ul style="list-style-type: none"> <li>• <b>Water and Sanitation</b> – the community accesses water through pumps, well and dams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, LPG and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace and land availability.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of adequate tractor services, provision of affordable farm input and provision of potable water. The community prioritises improvements in their farming, education and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Women's Group -<br>Navariwie          | Jamila Mohammed<br>Dimata Gariba<br>Amadu Laila | Treaasurerr<br>Member<br>Membe |             | 7/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it provides the community with job opportunities.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop and livestock farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate tractors, inadequate capital for farm expansion, high cost of fertilizers and lack of dams to sustain dry season farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 900 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Kasim, Frafra, Balsa, Fulani, Kantousi and the Sissala.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of Frafra from Bolgatanga, Bulsa from Sandema, Fulani from Bukina faso and the Kasim from Navrongo.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (90%), and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are about 15 women that head households.</li> <li>• <b>Indigenous Groups</b> – Sissalas in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chiefs, the unit committee, assembly member and the magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The women's group supports members with farm work, the VSLA group helps its members with money mobilization. The community also has the Kpaana group which marks funeral celebration and also the Gugoyila group which dances to entertain during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has no health care centre with the closet clinic and hospital located in Pina and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community only has a primary school with the JHS located in Pina and Dimojan, with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through borehole and strams.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)              | Role             | Contact No. | Date      | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                       |                                |                  |             |           | <ul style="list-style-type: none"> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision health facilities, affordable farm inputs and dams for dry season farming. The community prioritises improvements in their healthcare, education, and farming.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Farmers - Nouvariwe                   | Yussif Ambra<br>Yussif Zakaria | Farmer<br>Farmer |             | 7/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also engage the community in employment activities.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed unavailability and high cost of fertilizer, bad road network, invasion of farms by cattle and erratic rainfall pattern as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 950 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Kasim, Frafra, Balsa, Fulani, Kantousi and the Sissala.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of Frafra from Bolgatanga, Bulsa from Sandema, Fulani from Bukina faso and the Kasim from Navrongo.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (80%), Traditionalists (4%) and Christians (16%).</li> <li>• <b>Women Headed Households</b> – There are about 7 women that head households within the community.</li> <li>• <b>Indigenous Groups</b> – Sissalas in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, the, assembly member, the unit committee and the magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The women's group supports members with farm work, the VSLA group helps its members with money mobilization. The community also has the Kpaana group which marks funeral celebration and also the Gugoyila group which dances to entertain during ceremonies and the Kpaafilipura harvests fish.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival after September. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has no health care centre with the closet clinic and hospital located in Pina and Tumu respectively.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                               | Role                                    | Contact No. | Date      | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                                       |                                                                 |                                         |             |           | <ul style="list-style-type: none"> <li>• <b>Educational Facilities</b> – The community only has a primary school with the JHS located in Pina and Dimojan, with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through borehole and streams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision health facilities, affordable farm inputs, good road network and dams for dry season farming. The community prioritises improvements in their farming, education and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Youth Group -<br>Nouvairiwe           | Osman Chebe<br>Nyasu Abass<br>Gariba Jibiliru<br>Kuara Issahaku | Member<br>Member<br>Leader<br>Organizer |             | 7/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people especially the youth. The respondents wanted to know when the project will start.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed high cost of farm inputs, poor road network and lack of health facilities as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Kasim, Frafra, Bulsa, Fulani, Kantousi and the Sissala.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of Fulani from Burkina Faso, Balsa from Sandema, Kantousi from Wa and the Kasim from Navrongo</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (70%), and Christians (30%).</li> <li>• <b>Women Headed Households</b> – There are about 6 women that head households within the community.</li> <li>• <b>Indigenous Groups</b> – Sissalas in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders, the unit committee and the assembly member. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The women's group supports members with farm work, the VSLA group helps its members with money mobilization. The community also has the Kpaana group which marks funeral celebration and also the Gugoyila group which dances to entertain during ceremonies and the Kpaafilipura harvest fish from streams and rivers.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival after September. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has no health care centre with the closet clinic and hospital located in Pina and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community only has a primary school with the JHS located in Pina and Dimojan, with the closet SHS located in Tumu.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role  | Contact No. | Date      | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |       |             |           | <ul style="list-style-type: none"> <li>• <b>Water and Sanitation</b> – the community accesses water through borehole and streams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace of mind, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision health facilities, affordable farm inputs, good road network and dams for dry season farming. The community prioritises improvements in their education, health care and water.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Traditional Authority -<br>Novoriwie  | Seidu Gariba      | Chief |             | 7/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people. The respondents wanted how can the community benefit from the program.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed cattle invasion, inadequate tractor services, poor road network and high cost of fertilizer as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1100 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Kasim, Frafra, Balsa, Fulani, Kantousi and the Sissala.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of Fulani from Burkina Faso, Balsa from Sandema, Kantousi from Wa and the Kasim from Navrongo</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (70%), Traditionalists (10%) and Christians (20%).</li> <li>• <b>Women Headed Households</b> – There are about 10 women that head households within the community.</li> <li>• <b>Indigenous Groups</b> – Sissalas in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders, the assembly member and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The women's group supports members with farm work, the VSLA group helps its members with money mobilization. The community also has the Kpaana group which marks funeral celebration and also the Gugoyila group which dances to entertain during ceremonies and the Kpaafilipura harvest fish from streams and rivers.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival after September. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has no health care centre with the closet clinic and hospital located in Pina and Tumu respectively.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role         | Contact No. | Date      | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|                                       |                   |              |             |           | <ul style="list-style-type: none"> <li>• <b>Educational Facilities</b> – The community only has a primary school with the JHS located in Pina and Dimojan, with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through borehole and streams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is not easy since some basic amenities are not available in the community, some of the high points of the community include food availability, peace of mind, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision health facilities, affordable farm inputs, improved mobile network, good road network and dams for dry season farming. The community prioritises improvements in their farming, water and education.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Assembly Person -<br>Novoriwie        | Jetine Sulley     | Assembly Man |             | 1/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people especially the youth. The respondent is happy and welcomes the project.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut collection.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed insufficient funds to expand farms and inadequate tractor services as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include the Kasim, Frafra, Balsa, Fulani, Kantousi and the Sissala.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up of Fulani from Burkina Faso, Balsa from Sandema, Kantousi from Wa and the Kasim from Navrongo</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (80%), Traditionalists (10%) and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are about 20 women that head households within the community.</li> <li>• <b>Indigenous Groups</b> – Sissalas in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, assembly man, the unit committee and the magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The women's group supports members with farm work, the VSLA group helps its members with money mobilization. The community also has the Kpaana group which marks funeral celebration and also the Gugoyila group which dances to entertain during ceremonies and the Kpaafilipura harvest fish from streams and rivers.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Jimbanti festival after September. They community also celebrates the Christian and Islamic festivals as well. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has no health care centre with the closet clinic and hospital located in Pina and Tumu respectively.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role         | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                       |                   |              |             |            | <ul style="list-style-type: none"> <li>• <b>Educational Facilities</b> – The community only has a primary school with the JHS located in Pina and Dimojan, with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through borehole and streams.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks.</li> <li>• <b>Quality of Life</b> – The quality of life is considered poor since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision good road network, adequate tractor service, affordable fertilizers. The community prioritises improvements in their farming, education, and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Traditional Authority - Sakalu        | Mahama Bontie     | Acting Chief |             | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people especially the youth. The respondent is happy and welcomes the project.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing and shear nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed high cost and unavailable farm inputs, lack of dams, high cost of tractor services and climate change as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1600 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, Fulani, and the Dagaati.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up the Dagaati from Fielmuo and the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (80%), Traditionalists (5%) and Christians (15%).</li> <li>• <b>Women Headed Households</b> – There are no households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are groups in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, NGOs, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, elders and the assembly person. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment and lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group which helps its members with revenue mobilization.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates various traditional and religious festivals of its people. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Sakai and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                    | Role | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                                                                      |      |             |            | <ul style="list-style-type: none"> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 18% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of adequate tractor service, affordable farm inputs and provision of dams. The community prioritises improvements in their farming, water, and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Youth Group - Sakalu                  | Issahaku Gbene<br>Saheed Basia<br>Tie Tommie<br>Gbene Ibrahim Seidei |      |             | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people especially the youth. The respondents would like the project to start at the right time preferably during the farming season.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, and livestock rearing.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed climate change, high cost and unavailability of fertilizer and inadequate tractor services as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1500 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, Fulani, and the Dagaati.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up the Dagaati from Fielmuo and the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (70%), Traditionalists (10%) and Christians (20%).</li> <li>• <b>Women Headed Households</b> – There are no households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are groups in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, NGOs, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (July-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, elders and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment and lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group (VSLA) which helps its members with revenue mobilization.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Paragbelle, Christmas and Easter festivals. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Sakai and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)             | Role | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                       |                               |      |             |            | <ul style="list-style-type: none"> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 18% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of adequate tractor service, quality mobile network, affordable farm inputs and provision of dams. The community prioritises improvements in their water, farming, and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Farmers - Sakalu                      | Dunia Issah<br>Bayorwor Karim |      |             | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, shear-nut picking, and livestock rearing.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed climate change, high cost and unavailability of fertilizer, lack of dams for dry season farming and inadequate tractor services as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1510 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, Fulani, and the Dagaati.</li> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up the Dagaati from Fielmuo and the Fulani from Burkina Faso.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (80%), Traditionalists (10%) and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are no households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are groups in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, NGOs, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, elders and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment and lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group (VSLA) which helps its members with revenue mobilization.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Christmas and Easter festivals. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Sakai and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 20% of the population having access.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                           | Role                                                        | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                       |                                                                                             |                                                             |             |            | <ul style="list-style-type: none"> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of adequate tractor service, quality mobile network, affordable farm inputs and provision of dams. The community prioritises improvements in their water, farming, and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Women's Group -<br>Sakalu             | Adisah Abu<br>Osman Fati<br>Muniru Memuna<br>Abass Zanabu<br>Lafatu Saani<br>Sumaila Azakia | Member<br>Secretary<br>Member<br>Treasurer<br><br>Organizer |             | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide the farmers with farm inputs and also employ people.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, shear-nut picking, and livestock rearing.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed climate change, high cost and unavailability of fertilizer, lack of dams for dry season farming and inadequate tractor services as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1400 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, kasim, Fulani, and the Dagaati.</li> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up the Dagaati from Fielmuo , Kasim from Navrongo and the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community such as the disabled.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Religion</b> – The community is mostly composed of Muslims (80%), Traditionalists (10%) and Christians (10%).</li> <li>• <b>Women Headed Households</b> – There are about 40 women that head households in the community.</li> <li>• <b>Indigenous Groups</b> – There are groups in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, NGOs, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through appointment and lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group (VSLA) which helps its members with revenue mobilization.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Paragbelle, Christmas and Easter festivals. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Sakai and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 15% of the population having access.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role        | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|                                       |                   |             |             |            | <ul style="list-style-type: none"> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are not available in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of corn mill machine, dams for dry season farming, availability of farm inputs and tractor services. The community prioritises improvements in their farming, healthcare and water.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Assembly Person -<br>Sakalu           | Luri Shaibu       | Assemblyman |             | 17/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondent welcomes the project as it will provide employment for people.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community is farming, livestock rearing, and shear nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed erratic rainfall pattern, lack of dams, inadequate tractor services and unavailability of fertilizers as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1500 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, Fulani, and the Dagaati.</li> <li>• <b>Migrant Population</b> – Migrants ethnic groups in the community are made up the Dagaati from Fielmuo , and the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are vulnerable groups in the community.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (85%), Traditionalists (4%) and Christians (11%).</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Women Headed Households</b> – There are no households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and there are groups, NGOs, the LEAP program and private companies that provide support at times of the year of harsh financial difficulty especially during the farming season (June-August).</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, elders and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women susu group (VSLA) which helps its members with revenue mobilization.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates the Eid al-Adha, Christmas and Easter festivals. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Sakai and Tumu respectively.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 20% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are difficult to come by in the community, some of the high points of the community include food availability, peace, unity and land availability for farming and settlement.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role  | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|                                       |                   |       |             |            | <ul style="list-style-type: none"> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, availability of farm inputs and tractor services. The community prioritises improvements in their farming, water and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Traditional Authority –<br>Chinchang  | Kuoro Ahmed Hor   | Chief |             | 14/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondent welcomes the project as it will provide employment for people. The respondent wants to know how the community can be a beneficiary of the project.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing, and shear nut collecting.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate tractor services, unavailable and high cost of fertilizer, lack of dams to sustain dry season farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1300 people.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, and Fulani.</li> <li>• <b>Migrant Population</b> – The Migrant ethnic group in the community is made up of the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are as many as 90 people in the community that considered as vulnerable.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (97%), Traditionalists (2%) and Christians (1%).</li> <li>• <b>Women Headed Households</b> – There are 10 households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and wealthy people, groups, NGOs and the LEAP program all provide support during times of extreme financial hardship in the community from July-August.</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, unit committee and the magazia. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has youth groups that supports members with their farms. The gugoyila group dances and entertains during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates Veney festival in March every year. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Tumu.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role         | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                       |                   |              |             |      | <ul style="list-style-type: none"> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 65% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are difficult to come by in the community, some of the high points of the community include food availability, peace, no pilfering, respect and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, availability of farm inputs and tractor services. The community prioritises improvements in their farming, water and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Assembly Person -<br>Chinchang        | Abdulai Daalah    | Assembly Man | 14/12/2021  |      | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondent welcomes the project as it will provide employment for people.</li> <li>• <b>Land Ownership</b> – The community land is made up of only individual family land.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing, and shear nut collecting.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate tractor services, unavailable and high cost of fertilizer, lack of dams to sustain dry season farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1200 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, and Fulani.</li> <li>• <b>Migrant Population</b> – The migrant ethnic group in the community are made up of the Fulani from Burkina Faso.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Vulnerable Groups</b> – There are as many as 90 people in the community that considered as vulnerable.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (96%), and Christians (4%).</li> <li>• <b>Women Headed Households</b> – There are 20 households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and wealthy people, groups, NGOs and the LEAP program all provide support during times of extreme financial hardship in the community from July-August.</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlords, elders, and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has youth groups that supports members with their farms as a form of communal labour. The gugoyila group dances and entertains during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates Veney festival in March every year. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Tumu.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 60% of the population having access.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role   | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |        |             |            | <ul style="list-style-type: none"> <li>• <b>Quality of Life</b> – The quality of life is considered average since some basic amenities are difficult to come by in the community, some of the high points of the community include food availability, peace, no pilfering, respect and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, availability of subsidized fertilizer and tractor services. The community prioritises improvements in their farming, water and health care.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Farmer - Chinchang                    | Daniel Teche      | Farmer |             | 13/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondent is not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondent has not received any prior information about the project. The respondent is not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondent welcomes the project as it will provide employment for people.</li> <li>• <b>Land Ownership</b> – The community land is made up of private lands (50%) and Stool lands (50%).</li> <li>• <b>Land Use</b> – Land in the community is mainly used for crop farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the chiefs landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing, and shear nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed inadequate tractor services, unavailable, high cost of labour, and lack of dams to sustain dry season farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1000 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, and Fulani.</li> <li>• <b>Migrant Population</b> – The migrant ethnic group in the community are made up of the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are as many as 90 people in the community that considered as vulnerable.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Religion</b> – The community is mostly composed of Muslims (95%), Traditional (3%) and Christians (2%).</li> <li>• <b>Women Headed Households</b> – There are no households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and wealthy people, groups, NGOs and the LEAP program all provide support during times of extreme financial hardship in the community from July-August.</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlords, elders, and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders when they show bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has youth groups that supports members with their farms as a form of communal labour and the women's group contributes to financial mobilization for its members. The gugoyila group dances and entertains during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates Veney festival in March every year. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Tumu.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 60% of the population having access.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                         | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|                                       |                                                                                           |      |             |      | <ul style="list-style-type: none"> <li>• <b>Quality of Life</b> – The quality of life is considered very good, some of the high points of the community include food availability, peace, no thieves, and land availability for farming and settlement.</li> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, availability of subsidized fertilizer and tractor services. The community prioritises improvements in their farming, health care and education.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Youth Group -<br>Chinchang            | Amadu Dangolo<br>Kwabena Tommie<br>Tommie Batong Latif<br>Issaka Mahamadu<br>Salia Kawiwu |      |             |      | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide employment for people in the community.</li> <li>• <b>Land Ownership</b> – The community land is made up only private lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing, and shear nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed low soil fertility, climate change, lack of dams, high cots and unavailability of farm inputs as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1100 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Sissali, and Fulani.</li> <li>• <b>Migrant Population</b> – The migrant ethnic group in the community are made up of the Fulani from Burkina Faso.</li> <li>• <b>Vulnerable Groups</b> – There are as many as 30 people in the community that considered as vulnerable.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (99%), and Christians (1%).</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Women Headed Households</b> – There are 10 households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and wealthy people, groups, NGOs and the LEAP program all provide support during times of extreme financial hardship in the community from May-August.</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, elders, and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders due to bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women's group contributes to financial mobilization for its members. The gugoyila group dances and entertains during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates Veney festival in March every year. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Tumu.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, and firewood for energy. The community has access to mobile networks with only 70% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered very good, some of the high points of the community include food availability, peace, and land availability for farming and settlement.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s)                                                                                   | Role                                                                          | Contact No. | Date       | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                                       |                                                                                                     |                                                                               |             |            | <ul style="list-style-type: none"> <li>• <b>Community Needs/Priorities</b> – The project should include provision of dams for dry season farming, availability of subsidized fertilizer and tractor services. The community prioritises improvements in their farming, health care and education.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Women's Group -<br>Chinchang          | Braimah Mariama<br>Kojo Mariam<br>Dangolo Zanabu<br>Kwabena Sala<br>Tommie Rabiatsu<br>Dajan Ramatu | Vic Chairwoman<br>Secretary<br>Chirperson<br>Organizer<br>Treasurer<br>Member |             | 13/12/2021 | <ul style="list-style-type: none"> <li>• <b>Community Awareness of Project</b> – The respondents are not aware of the project.</li> <li>• <b>Land Acquisition and Involuntary Resettlement</b> – The respondents have not received any prior information about the project. The respondents are not aware of the possibility of land acquisition and involuntary resettlement that accompanies the project.</li> <li>• <b>Project Impact on Community</b> – The respondents welcome the project as it will provide employment for people in the community.</li> <li>• <b>Land Ownership</b> – The community land is made up only private lands.</li> <li>• <b>Land Use</b> – Land in the community is mainly used for farming.</li> <li>• <b>Land Right and Access</b> – Land access is gained by negotiating with the landowners. There are no squatters on private owned lands.</li> <li>• <b>Land Related Conflicts</b> – The community has not experienced any land related conflicts.</li> <li>• <b>Livelihood Activities</b> – The main sources of livelihood in the community are farming, livestock rearing, firewood collection, Dawadawa collection and shear nut picking.</li> <li>• <b>Livelihood Challenges</b> – The respondents listed unavailable tractor services, high cost and unavailable fertilizers and lack of dams for dry season farming as some of the challenges to livelihoods.</li> <li>• <b>Community Population</b> – The community has a population of about 1200 people.</li> <li>• <b>Ethnic Groups</b> – The main ethnic groups in the community include Dagaaba, Wali, Sissali, Kasim, Fulani, and Frafra.</li> <li>• <b>Migrant Population</b> – The migrant ethnic groups in the community are made up of the Fulani from Burkina Faso, Frafra from Bolgatanga, Wali from Wa, and the Kasim from Navrongo.</li> <li>• <b>Vulnerable Groups</b> – There are as many as 100 people in the community that considered as vulnerable.</li> <li>• <b>Religion</b> – The community is mostly composed of Muslims (98%), Traditionalists (1%) and Christians (1%).</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li>• <b>Women Headed Households</b> – There are 10 households in the community that are headed by women.</li> <li>• <b>Indigenous Groups</b> – There are no individuals in the community that are considered as indigenous.</li> <li>• <b>Support for Less Privileged</b> – There are less privileged people in the community that experience financial hardships and wealthy people, groups, NGOs and the LEAP program all provide support during times of extreme financial hardship in the community from May-August.</li> <li>• <b>Key Decision Makers</b> – the decision makers in the community include the chief, landlord, elders, and the unit committee. The assembly person represents the community in government and the community is satisfied with their representative, women are included during decision making through the magazia.</li> <li>• <b>Appointment of Community Leadership</b> - Leaders are chosen through voting for the assemblyman, other leaders are chosen through lineage for chiefs and elders. People are prevented from being leaders due to bad character.</li> <li>• <b>Existing Traditional/Cultural groups</b> – The community has the women's group contributes to financial mobilization for its members, the youth group also supports its members with their farming activities as communal labour. The gugoyila group dances and entertains during ceremonies.</li> <li>• <b>Festivals and Sacred Events/Sites</b> – The community celebrates Veney festival in March every year. There are no sacred sites that will be affected by the project.</li> <li>• <b>Healthcare</b> – The community has a CHIPS compound with the nearest clinic and hospital located in Tumu.</li> <li>• <b>Educational Facilities</b> – The community has a primary school and a JHS with the closet SHS located in Tumu.</li> <li>• <b>Water and Sanitation</b> – the community accesses water through boreholes.</li> <li>• <b>Utility services</b> – The community has access to electricity. The community uses charcoal, LPG, and firewood for energy. The community has access to mobile networks with only 30% of the population having access.</li> <li>• <b>Quality of Life</b> – The quality of life is considered good some of the high points of the community include food availability, peace, and land availability for farming and settlement.</li> </ul> |

| Stakeholder/<br>Institution/ Location | Contact Person(s) | Role | Contact No. | Date | Concerns Raised/ Information Received                                                                                                                                                                                                                                                   |
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|                                       |                   |      |             |      | <ul style="list-style-type: none"> <li><b>Community Needs/Priorities</b> – The project should include provision improved mobile network accessibility, provision of dams and tractor services. The community prioritises improvements in their water, farming and education.</li> </ul> |

**Annex 6      Air Quality, Noise Assessment and Surface Water Testing at Sissala East Municipality**



# SAVANNAH AGRICULTURE VALUE CHAIN DEVELOPMENT PROJECT (SADP)

## **AIR QUALITY, NOISE ASSESSMENT AND WATER QUALITY ANALYSIS**

### **SISSALA EAST MUNICIPAL DISTRICT (NAVARIWIE COMMUNITY)**

*January, 2022*



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## ACRONYMS

|       |                                                               |
|-------|---------------------------------------------------------------|
| GSA   | - Ghana Standards Authority                                   |
| LEQ   | - Equivalent noise level                                      |
| L10   | - Nuisance noise level                                        |
| L50   | - Average noise level                                         |
| L90   | - Background noise level                                      |
| Lmax  | - Maximum Noise Level                                         |
| PCMU  | - Project Coordination and Management Unit                    |
| PM    | - Particulate Matter                                          |
| SADP  | - Savannah Agriculture Value Chain Development Project        |
| SAPIP | - Savannah Zone Agricultural Productivity Improvement Program |

## **1.0 INTRODUCTION**

### **1.1 Background**

The Government of the Republic of Ghana with assistance from the African Development Bank, through the Feed Africa Strategy, seeks to develop the savannah areas as part of Government's ongoing efforts in Planting for Food and Jobs (PFJ) and Rearing for Food and Jobs (RFJ) programs. This support is to allow medium scale commercial farmers and their out growers to expand areas under cultivation for rice, soybean and maize under PFJ, which feeds into poultry value chain under RFJ. This integrated approach supports elements of growing at scale and provision of market outlets for smallholder farmers, especially women and youth.

The Savanah Agriculture Value Chain Development Project (SADP) is being implemented to serve as part of post COVID-19 reconstruction efforts aimed at addressing disruptions in food systems of the Government of Ghana.

The proposed project will have three components namely (i) Component 1: Production Development, (ii) Component 2: Integrated Agribusiness and Value Chain Development, and (iii) Component 3: Project Management and Institutional Support.

#### **1) Production Development:**

Increase the production of basic (foundation) seeds, production and promotion of certified hybrid maize and improved soybean seed, in collaboration with seed companies, Support to land development and mechanisation services, Training of producers, pack house operators and exporters on sanitary and phytosanitary (SPS) concerns relating to maize and soybeans, Farmer mobilisation and awareness creation, Train project staff and farmers on Integrated Crop and Pest Management (ICPM)/PMP, including biological control options for the management of Fall Army Worm (FAW) and aspergillus on Maize and Soybeans, Conduct surveillance and collect data on pests affecting Maize and Soybeans in the project zones with specific reference to FAW.

#### **2) Integrated Agri-Business and Value Chain Development:**

Promotion of quality standards for maize and soybean production, storage and processing, Support the establishment of small-to-medium scale poultry processing units at district level, Support business development, including improvements in business processes of existing commercial farmers, Enhance access to market information (e.g. quantity, quality, timing and pricing), Expand Commercial Poultry Revolving Fund to finance inputs to small-to-medium scale women/youth poultry farmers, Support Co-Financing Opportunities with Ghana Exim Bank, Agriculture Development Bank, etc.

#### **3) Project Management and Institutional Support:**

Development of annual work plan and budget, establishment of results-based monitoring and evaluation system, Conduct Beneficiary Impact Assessment. Conduct Project Mid-Term Review, Conduct Project Completion/Technical Review (PCR), Video and pictorial documentation of

success stories, Support to the coordination and implementation of Rearing for Food and Jobs, undertake relevant studies, including socio-economic surveys, soil suitability surveys etc.

A total of 9 districts have been earmarked for the implementation of the project (**figure 1**).



**Figure 1: Map of Ghana showing the 9 districts selected for project implementation**

SAL Consult Ltd has been contracted to carry out the Environmental and Social Impact Assessment study which includes a baseline study for air quality, noise assessment and water quality. The field activities were undertaken between 16<sup>th</sup> January, 2022 and 29<sup>th</sup> January, 2022 and this report provides the outcome of the field study in Navariwie community (**Figure 2**) a selected community in the Sissala East Municipality.

## 1.2 Purpose of Environmental Quality Monitoring

The aim of this monitoring is therefore to gather relevant environmental quality data with respect to Ambient Air, Noise Levels and Water Quality to describe baseline conditions at the project site. The data gathered will provide useful information to help monitor its operational impacts on the environment, health and safety of its employees and surrounding neighbors.

## 1.3 Objective

The objectives of the monitoring are to:

- Measure the concentration of particulate matter (PM<sub>2.5</sub> & PM<sub>10</sub>) at selected locations within the project catchment area
- Measure ambient noise levels at selected locations within the project catchment and neighboring communities.
- In-situ testing of nearest water bodies for the following parameters
  - pH;
  - Conductivity;
  - Total Dissolved Solids; and
  - Temperature
- Laboratory testing of nearest water bodies for the following parameters
  - Turbidity;
  - Total Suspended Solids;
  - Nitrate-Nitrogen;
  - Phosphate-Phosphorus;
  - Alkalinity;
  - Chlorine;
  - BOD;
  - COD;
  - Oil/Grease;
  - Iron ; and
  - Manganese

## 1.4 Compliance Criteria

In this report, ambient air quality results are compared with the GSA Standard, Environmental and Health Protection Requirements for Ambient Air Quality and Point Source/Stack Emissions (GS 1236:2019). Noise data is compared with the Health Protection- Requirements for Ambient Noise Control of the Ghana Standards Authority (GS 1222:2018). These standards are provided in the tables below.

**Table 1: Environment and Health Protection- Requirements for Ambient Air Quality and Point Sources/Stack Emissions (GS 1236:2019)**

| #                                                                  | Air Quality Parameter                                                  | Maximum Limits        | Averaging Time                                |
|--------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------|-----------------------------------------------|
| 1                                                                  | Carbon Monoxide, $\mu\text{g}/\text{m}^3$                              | 100<br>60<br>30<br>10 | 15 minutes<br>30 minutes<br>1 hour<br>8 hours |
| 2                                                                  | Sulphur Dioxide ( $\text{SO}_2$ ), $\mu\text{g}/\text{m}^3$            | 150                   | 24hours                                       |
| 3                                                                  | Nitrogen Oxides (measured as $\text{NO}_2$ ), $\mu\text{g}/\text{m}^3$ | 150                   | 24hours                                       |
| 4                                                                  | Total Suspended Particulate, $\mu\text{g}/\text{m}^3$                  | 150<br>100            | 24hours<br>1 year                             |
| 5                                                                  | $\text{PM}_{10}$ , $\mu\text{g}/\text{m}^3$                            | 70<br>70              | 24hours<br>1 year                             |
| 6                                                                  | $\text{PM}_{2.5}$ , $\mu\text{g}/\text{m}^3$                           | 35                    | 24hours                                       |
| <b><i>Shaded rows show applicable guidelines to this study</i></b> |                                                                        |                       |                                               |

**Table 2: Health Protection-Requirements for Ambient Noise Control (GS 1222:2018)**

| Zone                                                               | Description Area of Noise Reception                                                              | Noise Level, dB(A) |                     |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|---------------------|
|                                                                    |                                                                                                  | Day (06:00-22:00)  | Night (22:00-06:00) |
| <b>A</b>                                                           | Residential Areas                                                                                | 55                 | 48                  |
| <b>B</b>                                                           | Educational (School) and health(hospital, clinic) facilities, office and law courts              | 55                 | 50                  |
| <b>C</b>                                                           | Mixed used (Residential areas with some commercial or light industrial activities)               | 60                 | 55                  |
| <b>D</b>                                                           | Areas with some light industry, places of entertainment or public assembly and places of worship | 65                 | 60                  |
| <b>E</b>                                                           | Commercial areas                                                                                 | 75                 | 65                  |
| <b>F</b>                                                           | Light industrial areas                                                                           | 70                 | 60                  |
| <b>G</b>                                                           | Heavy industrial areas                                                                           | 70                 | 70                  |
| <b><i>Shaded row shows applicable guidelines to this study</i></b> |                                                                                                  |                    |                     |

## 2.0 ENVIRONMENTAL MONITORING METHODOLOGY

The methodology for sampling the various parameters is discussed in this section. Particulate matter and noise were both monitored at the same time; thus, all parameters were monitored under the same weather conditions.

### 2.1 Sampling locations

Sampling was done within the Navariwie community in the Sissala East Municipality. This community was selected as a beneficiary community of the upcoming SADP project.

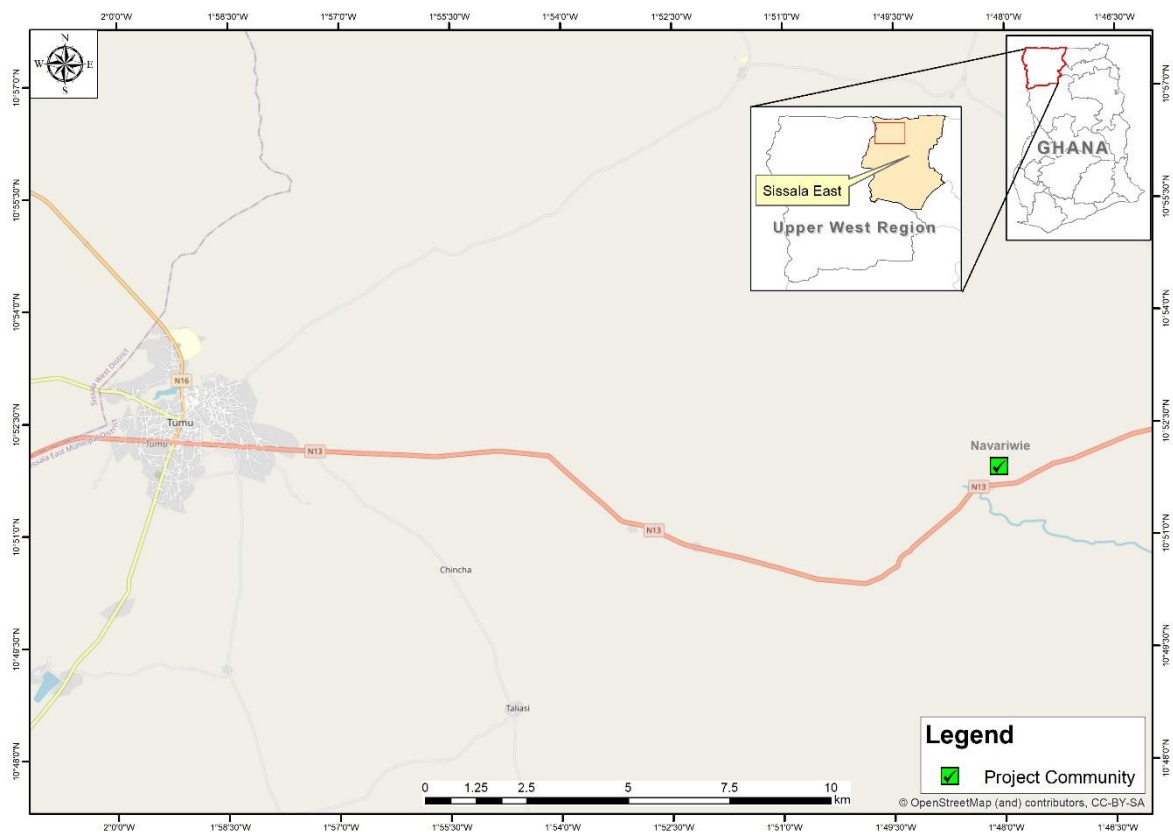


Figure 2: Location Map showing Navariwie community

### 2.2 Sampling Location and Weather conditions

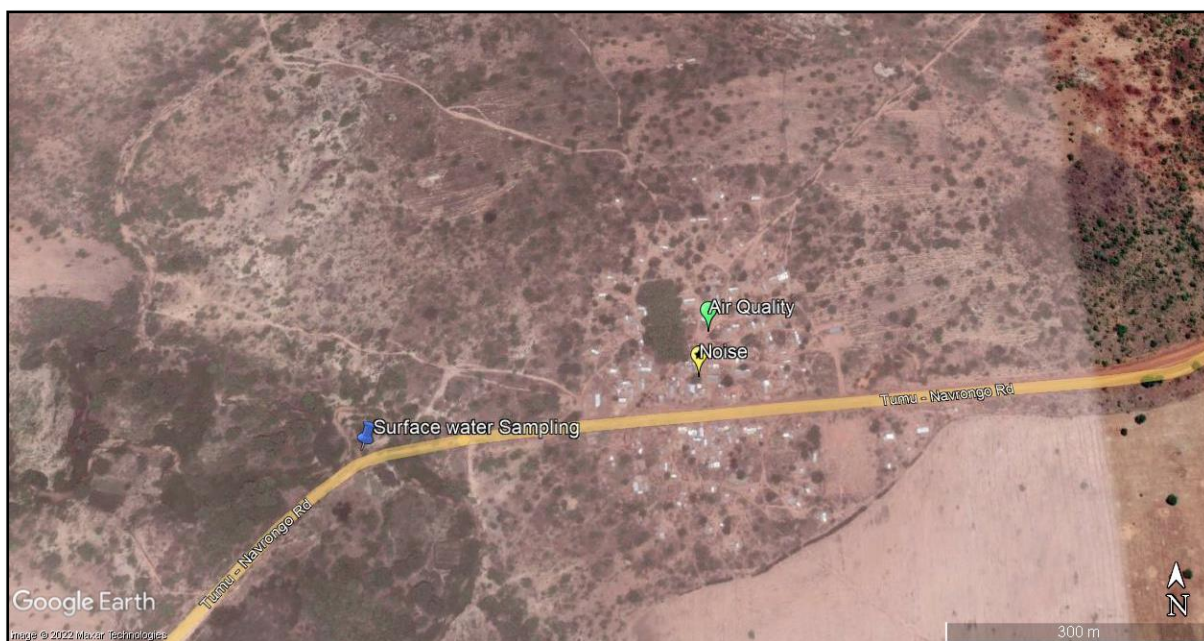
Table 3 and 4 below shows the details of the weather conditions and GPS locations of the sampling locations

**Table 3: Details of Air and Noise sampling, locations and weather conditions.**

|                                   | DATE AND TIME |       | WEATHER CONDITION |           |              |                   |                       |                          |
|-----------------------------------|---------------|-------|-------------------|-----------|--------------|-------------------|-----------------------|--------------------------|
|                                   | DATE          | TIME  | Longitude         | Latitude  | Temp.        | Relative Humidity | Atmospheric condition | Wind Direction and Speed |
| <b>PM<sub>10</sub></b>            | 25/01/22      | 24HRS | -1.802546         | 10.861575 | 32°C (H:34°) | 8%                | Clear/dry             | NE 21Km/hr               |
| <b>PM<sub>2.5</sub></b>           | 25/01/22      | 24HRS | -1.802546         | 10.861575 | 32°C (H:34°) | 8%                | Clear/dry             | NE 21Km/hr               |
| <b>NOISE ASSESSMENT Daytime</b>   | 25/01/22      | 12HRS | -1.803117         | 10.861248 | 32°C (H:34°) | 8%                | Clear/dry             | NE 21Km/hr               |
| <b>NOISE ASSESSMENT Nighttime</b> | 25/01/22      | 12HRS | -1.803117         | 10.861248 | 32°C (H:34°) | 8%                | Clear/dry             | NE 21Km/hr               |

**Table 4: Details of water testing locations**

|                       | Date     | Sampling code and description | Longitude | Latitude  |
|-----------------------|----------|-------------------------------|-----------|-----------|
| <b>WATER SAMPLING</b> | 25/01/22 | SE – Navariwie stream         | -1.806007 | 10.860647 |



**Figure 3: Satellite Imagery showing sampling locations**

## 2.3 Particulate matter monitoring

The sampling and analysis of ambient particulate matter concentrations was done according to the ASTM Test Method D4096-17.

Particulate matter was sampled for 24 hours using ARA N-FRM Air Sampler set to a flow rate of 16.7 L/min. The sampler draws air through the inlet onto a 47mm quartz filter for analysis. The quartz filter paper was stabilized for a minimum of 24 hours before and after sampling in a desiccator.

The ARA N-FRM air sampler is equipped with a RTP profiler, which uses a Plantower light-scattering sensor to provide real-time data for two size ranges approximating PM<sub>10</sub> and PM<sub>2.5</sub>. It shows trends during the sample run, supplementing the filter data.

The fresh quartz filter paper was weighed before sampling. After the 24-hour sampling period, post sampling filters were weighed and the difference in weight (W<sub>2</sub>-W<sub>1</sub>) was used to calculate the concentration of the particulate matter in  $\mu\text{g}/\text{m}^3$  using the formula below.

$$(PM_{2.5} \text{ \& } PM_{10}) \mu\text{g}/\text{m}^3 = \frac{\text{Net dust weight} \times 10^6 \mu\text{g} \times 1000\text{L}}{\text{Flow rate (L/Min)} \times \text{Sampling time (Min)} \times 1\text{g} \times 1\text{m}^3}$$

**NB:**  $10^6 \mu\text{g} = 1\text{g}$  (since the unit of measurement of the balance is in grams);  $1000\text{L} = 1\text{m}^3$  (Since flow rate is in L/min)

Photo of equipment mounted for PM<sub>10</sub> and PM<sub>2.5</sub> sampling is provided in Plate 1 below:



**Plate 1: ARA N-FRM sampler mounted for Ambient Air Quality Monitoring**

## 2.4 Ambient Noise

Sound is energy that travels in waves and is measured in frequency and amplitude. Frequency, reported in Hertz (Hz), measures the number of sound vibrations in one second. Amplitude, reported on the decibel (dB) scale, measures its pressure or forcefulness. The more amplitude a sound has, the louder it is.

A decibel (dB) is therefore the unit for the measurement of noise. The zero on a decibel scale is at the threshold of hearing, the lowest sound pressure that can be heard on the scale 20 dB which is a whisper, 40 dB the noise in a quiet office, 60 dB is normal conversation, 80 dB is the level at which sound becomes physically painful.

Noise measurements/recordings were taken with a High Precision TSI Quest Sound Level Meter, Model Type 1. The sound level meter has an in-built calibrator and was calibrated before each measurement/recordings were taken. The noise meter was calibrated at 114 dB (A) prior to the measurement.

The following statistical indices was computed:

- L<sub>max</sub>
- L<sub>min</sub>
- L<sub>Aeq</sub>
- L<sub>10</sub>
- L<sub>50</sub>
- L<sub>90</sub>

Photo of equipment mounted at the selected location for noise monitoring is provided in Plates 2.



**Plate 2: Noise monitoring in the Navariwie community**

## 2.5 Water Sampling

Water testing was done at the nearest water source (Navariwie Stream) in the community. This source is within the project area of influence and potential recipients of any pollution impact from the project.

This are relatively clean source of water based on the in-situ testing results and results from CSIR-WRI (Table 8).

The Navariwie stream is mostly used for construction works, animals and farming. However, the community relies mainly on the Borehole for drinking, and domestic's works.



**Plate 3: Navariwie stream**

The Navariwie stream was tested on the, 25<sup>th</sup> January 2022 at 11:15am. Parameters including Temperature, pH, TDS and Conductivity were measured in-situ by means of field kit (Plate 4). Calibration reagents are used to calibrate the Field Test Kit before each use.



**Plate 4:Thermo Scientific EUTECH Handheld Meter Kit**



**Plate 5: Navariwie sampling and in-situ testing.**

### **3.0 RESULTS AND DISCUSSIONS**

#### **3.1 Air Quality**

The ambient air quality and noise monitoring results are provided in Table 5, 6 and 7 below.

##### **3.1.1 Ambient Particulate Matter ( $PM_{2.5}$ , and $PM_{10}$ )**

The 24-hour  $PM_{2.5}$  and  $PM_{10}$  concentrations measured at the Navariwie community were **15  $\mu\text{g}/\text{m}^3$**  and **47  $\mu\text{g}/\text{m}^3$**  respectively (See table 5).

**Table 5: Summary of Ambient  $PM_{2.5}$  and  $PM_{10}$  Results Measured at Navariwie community**

| <b>Location</b>                                                                                                                                                                             | <b><math>PM_{2.5}</math> (<math>\mu\text{g}/\text{m}^3</math>)</b> | <b><math>PM_{10}</math> (<math>\mu\text{g}/\text{m}^3</math>)</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Navariwie Community</b>                                                                                                                                                                  | <b>15</b>                                                          | <b>47</b>                                                         |
| <i>Ghana Standards (GS 1236:2019) value for 24-hour ambient air quality for <math>PM_{10}</math> and <math>PM_{2.5}</math></i>                                                              | 35                                                                 | 70                                                                |
| <i>WHO Ambient Air Quality Guidelines for 24-hour for <math>PM_{10}</math> and <math>PM_{2.5}</math> (Source: <a href="http://www.ifc.org/ehsguidelines">www.ifc.org/ehsguidelines</a>)</i> | 25                                                                 | 50                                                                |
| <b>Sampling dates: 25<sup>th</sup> to 26<sup>th</sup> January 2022</b>                                                                                                                      |                                                                    |                                                                   |

- The concentrations of  $PM_{2.5}$  and  $PM_{10}$  values are within the Ghana Standards (GS 1236:2019) and WHO Ambient Air Quality Guidelines for 24-hour for  $PM_{10}$  and  $PM_{2.5}$  IFC guideline values.
- Thus, the ambient air quality at the Navariwie community complied with the GSA standard.

## 3.2 Ambient Noise

### 3.2.1 Daytime Ambient Noise Levels

The Table 6 below shows the measured daytime noise levels at the Navariwie community. The daytime ambient noise levels (LEQ) recorded was 52.6dB(A) at the Navariwie Community.

**Table 6: Day Ambient Noise Results.**

| Location                                                                                                                                  | LEQ  | L10  | L50  | L90  | LMAX |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|
| Navariwie Community                                                                                                                       | 52.6 | 50.4 | 44.1 | 39.5 | 88.9 |
| Ghana Standards (GS 1222:2018) for daytime Mixed use (Residential areas with some commercial or light industrial activities) 06:h00-22h00 | 60   |      |      |      |      |
| IFC Noise Level Guidelines for Residential, Institutional, Educational Facilities Day. (07:00-22:00) (Source:www.ifc.org/ehsguidelines)   | 55   |      |      |      |      |
| IFC Noise Level Guidelines for Industrial, Commercial facilities Day (7:00-22:00) (Source:www.ifc.org/ehsguidelines)                      | 70   |      |      |      |      |
| Monitoring date: 25 <sup>th</sup> January, 2022                                                                                           |      |      |      |      |      |

- From the Table above, the daytime noise levels complied with the GSA standards at the Navariwie community.
- During the monitoring, the observed sources of noise were from intermittent vehicular movement around, braying of donkeys and some form of chatter amongst community members around.

### 3.2.2 Nighttime Ambient Noise Levels

The Table 7 below shows the measured nighttime noise levels at the Navariwie community. The nighttime ambient noise levels (LEQ) recorded was 43.0dB(A) at the Navariwie Community.

**Table 7: Night Ambient Noise levels (dBA) recorded.**

| Location                                                                                                                                   | LA <sub>EQ</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>90</sub> | L <sub>MAX</sub> |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|-----------------|-----------------|------------------|
| Navariwie Community                                                                                                                        | 43.0             | 45.4            | 40.8            | 37.0            | 58.6             |
| Ghana Standards (GS 1222:2018) for nighttime Mixed use (Residential areas with some commercial or light industrial activities) 22h00-06h00 | 55               |                 |                 |                 |                  |
| IFC Noise Level Guidelines for Residential, Institutional, Educational Facilities Day. (22:00-7:00) (Source:www.ifc.org/ehsguidelines)     | 55               |                 |                 |                 |                  |
| IFC Noise Level Guidelines for Industrial, Commercial facilities Day (22:00-7:00) (Source:www.ifc.org/ehsguidelines)                       | 70               |                 |                 |                 |                  |
| Monitoring date: 25 <sup>th</sup> to 26 <sup>th</sup> January 2022                                                                         |                  |                 |                 |                 |                  |

- From the Table above, the nighttime noise levels complied with the GSA standards at the Navariwie community.

- During the monitoring, the observed sources of noise were from the rustling of winds and crickets chirping.

### 3.2.3 Surface water quality

The quality of community Navariwie stream against WHO drinking guidelines is provided in table 8.

**Table 8 Comparison of water quality against WHO drinking water quality guidelines.**

| Parameter                             | Navariwie stream | WHO drinking water quality guidelines |
|---------------------------------------|------------------|---------------------------------------|
| pH                                    | 6.45             | 6.5 – 8.5                             |
| Conductivity, $\mu\text{S}/\text{cm}$ | 133.3            | -                                     |
| TOTAL DISSOLVED SOLIDS (TDS)          | 71.63            | 1000                                  |
| TEMPERATURE                           | 21°C             | -                                     |
| TURBIDITY                             | 63.0             | -                                     |
| TOTAL SUSPENDED SOLIDS (TSS)          | 57.0             | -                                     |
| NITRATE-NITROGEN                      | 0.051            | 50                                    |
| PHOSPHATE-PHOSPHORUS                  | 1.93             | -                                     |
| ALKALINITY                            | 86.6             | -                                     |
| CHLORIDE                              | 11.4             | 250                                   |
| BOD                                   | 9.80             | -                                     |
| COD                                   | 73.6             | -                                     |
| OIL/GREASE                            | 1.25             | -                                     |
| IRON                                  | 0.415            | 0.300                                 |
| MANGANESE                             | 0.140            | 0.400                                 |

## 4.0 CONCLUSION

### Air Quality

The Particulate Matter ( $\text{PM}_{2.5}$  &  $\text{PM}_{10}$ ) concentrations monitored at Navariwie Community was found to be within the Ghana Standard (GS 1239:2019) permissible values of 35 and 70 ( $\mu\text{g}/\text{m}^3$ ). The monitoring team did not observe much activities in the communities that could have significant influence on the air quality at the time of the assessment.

### Noise Monitoring

The ambient noise levels (LEQ values) recorded were compared to their respective Ghana Standard (GS 1222:2018) and IFC guideline values.

The daytime ambient noise level (dBA) for the project site was below the GSA and IFC  $\text{LA}_{\text{EQ}}$  guideline values.

The nighttime ambient noise level (dBA) for the project site was also below the GSA and IFC  $\text{LA}_{\text{EQ}}$  guideline values.

### Surface water quality

Parameters analyzed were within the WHO drinking water guidelines with the exception of iron which was just higher than the guideline, showing that the quality of the Navariwie stream is generally good.

**Annex 7: Pictures of stakeholder engagements**



Meeting with the EPA at Tumu in the Sissala East Municipality



Consultation with the National Disaster Management Organization Office of the Sissala East Municipality in Tumu



Interactions with the Fire Service in Tumu, Sissala East Municipality

**Plate 1: Meetings with Project Proponents**