REPUBLIC OF GHANA

MINISTRY OF FOOD OF FOOD AND AGRICULTURE

West African Food System Resilience Program Phase 2 (FSRP2)

(P178132)

Environmental and Social Management Framework (ESMF) Addendum for the Contingency Emergency Response Component (CERC)

(CERC-ESMF)

October 2024

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List of Acronyms

AGRHYMET	Agriculture, Hydrology and Meteorology
APD	Animal Production Directorate
ARAP	Abbreviated Resettlement Action Plan
ARI	Animal Research Institute
DDF	District Development Fund
CERC	Contingency Emergency Response Component
CERSGIS	Centre for Remote Sensing and Geographic Information Services
CDA	Coastal Development Authority
CILSS	Comité permanent inter-Etat de lutte contre la sécheresse au Sahel
CH	Cadre Harmonisé
CORAF	West and Central African Council for Agricultural Research and Development
CRI	Crop Research Institute
CSIR	Council for Scientific and Industrial research
DAES	Directorate of Agricultural Extension Services
DFSA	College of Science and Technology, Department of Fisheries Science and Aquaculture
EA	Environmental Assessment
EAA	Environmental Assessment and Audit
EAR	Environmental Audit Report
e-AP	e-Agricultural Programme
EA/TRC	Environmental Assessment Technical Review Committee
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESCP	Environmental Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESF	Environmental and Social Framework
ESS	Environmental and Social Standard
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organisation
FRSP	Food Residues Survey Programme
GDP	Gross Domestic product
GIDA	Ghana Irrigation Development Authority
GoG	Government of Ghana
GRC	Grievance Committee
GCAP	Ghana Commercial Agriculture Project
IIE	Independent Impact Evaluation
GIDA	Ghana Irrigation Development Authority
GoG	Government of Ghana
GRC	Grievance Committee
IIE	Independent Impact Evaluation
IESS	Institute of Environment and Sanitation Studies
ILM	Integrated Landscape Management
IRI	Industrial Research Institute
LAP	Land Administration Project
LVD	Land Valuation Division
MBDA	Middle-Belt Development Authority
MEP	Monitoring and Evaluation Plan

METASIP	Medium Term Agriculture Sector Investment Plan
MET	Monitoring and Evaluation team
MMDAs	Metropolitan, Municipal and District Assembly
MoFA	Ministry of Food and Agriculture
MPA	Multi–Phase Programmatic Approach
MSA	Meteorological Services Authority
NAFCO	National Food Buffer Stock Company
NDA	Northern Development Authority
NEPAD	New Partnership for African Development
NGOs	Non-governmental Organizations
PAPs	Project Affected Persons
PDO	Program Development Objective
PIU	Project Implementing Authority
PPD	Plant Protection Division
RAP	Resettlement Action Plan
RCC	Regional Coordinating Council
RPF	Resettlement Action Framework
SADA	Savannah Accelerated Development Authority
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
SEP	Stakeholder Engagement Plan
SLWM	Sustainable Land and Water Management
SRI	Soil Research Institute
FSRP2	West Africa Food Systems Resilience Program
WIAD	Women in Agriculture Development
WEEE	Waste Electrical and Electronic Equipment
WHO	World health Organisation
WRC	Water Resources Commission
VCs	Value Chains

1.0 INTRODUCTION AND BACKGROUND

1.1 Background

Ghana is facing a potential food insecurity following a drought that struck its major food production areas during July-August 2024 period especially in the Northern, Savanah, Bono and Bono East Regions. These regions are critical to food security as they produce 62% of the country's cereal. A total of 928,523 farmers and their households have been affected and will suffer major food insecurity if they are not assisted. Government in response to the looming food shortage is seeking to initiate various mitigation measures including support to farmers to recover and recultivate their farms in the next planting season.

The Ministry of Food and Agriculture (MoFA) preliminary survey reports indicate that about 928,523 farmers cropping 1,857,045 hectares are at risk of food insecurity. These farmers will lose an estimated investment of GHS7.4 billion if they lose all their crops. This corresponds to a total estimated value of potential revenue loss of GHS 22.2 billion representing 10% of agriculture Gross Domestic product (GDP) of GHS 220 billion. Currently, 435,872 farmers cultivating an estimated area of 871,745 hectares have been directly affected. Maize, rice, groundnut, soybean, sorghum, millet and yam are the most widely affected crops across these regions (appendix 2). The affected famers will lose an estimated investments of GHS 3.5 billion with a corresponding potential revenue of GHS10.4 billion.

The Government of Ghana (GoG) in collaboration with ECOWAS and the World Bank is implementing the West African Food System Resilience Project (FSRP) Phase 2 under the World Bank Multi-Phase Programmatic Approach (MPA) for Investment Project Financing Instrument. Ghana is part of Phase 2 of the programme with other countries namely: Sierra Leone, and Chad, and three regional partners, (ECOWAS[1], CILSS[2] and CORAF[3]. The FSRP2 is expected to be implemented over a 5-year period.

In response to the looming food insecurity envisaged because of the prolonged dry spells, the government is using its funding window under Component 4 – Contingency Emergency Response Component (CERC) of the FSRP to tackle the disaster in its effort to restore livelihoods.

An amount of Eighty-Five (85) Million USD will be moved from other Components of FSRP2 to finance this emergency intervention occasioned by the long dry spell. The amount will support inputs purchasing to encourage food production nationwide. This CERC-Environmental and Social Management Framework (ESMF) will address any potential risks and impacts which might arise because of the implementation of these CERC emergency interventions. The GoG and MOFA (FSRP) will prepare an additional financing instrument to replenish the funds to enable FSRP2 continue with the original project implementation objectives.

[1] ECOWAS – Economic Community of West African States

[2] CILSS – Comité permanent inter-Etat de lutte contre la sécheresse au Sahel (translated as Permanent Inter-State Committee for Drought Control in the Sahel). CILSS invests in research for food and nutritional security and fight against the effects of desertification and climate change in the Sahel and West Africa.

[3] CORAF – Conference de responsable Recherche Agronomique Africain (West & Central Africa Council for Agriculture Research and Development). CORAF is responsible for improved efficiency and effectives of smallholder producers and to promote agribusiness sector.

1.2 FSRP Project Description and the CER Component

The development objective of the parent FSRP2 is to increase preparedness against food insecurity and improve the resilience of food systems in Ghana. The Food Systems Resilience Project is organized around five core distinct but interrelated components to help achieve the objectives of the project. The project components include:

Component 1: Improving digital advisory services to support timely agriculture and food crisis prevention and management - This component aims at strengthening national capacity to provide demand-driven digital advisory services. This will include agro-advisory and impact-based hydromet/climate information and early warning services, and promote their use for food crisis prevention, management, and response.

This Component has two **sub-components**. Sub-component 1.1 will specifically, roll out interventions to; i) improve national capacity to deliver reliable information services on vulnerability, nutrition, and food security; ii) reorganize and improve national pest and disease monitoring and management mechanisms; and iii) strengthen regional collaboration for food crisis prevention.

Sub-component 1.2 seeks to; i) strengthen digital hydromet and agro- advisory services for agriculture producers; ii) improve the production of climate, hydromet, agromet, and impact-based information for use by decision-makers, farmers, pastoralists, and other actors in the food system; iii) support the timely delivery and use of essential agro-hydro-meteorological information to key users; and iv) strengthen the institutional and financial sustainability of agro-hydro-meteorological service providers.

Component 2: Sustainability and adaptive capacity of Ghana's food systems productive base - This component consolidates the regional agricultural innovation systems and strengthens regional food security through integrated landscape management. These include strengthening regional research and extension systems to deliver improved technological innovations including climate-smart, nutrition-sensitive, gender and youth-friendly technologies in a sustainable manner, as well as a combination of natural resource management with environmental and livelihood activities using the integrated landscape management approach.

This Component has two **Sub-components**. Sub-component 2.1, will address the following by; i) consolidating regional agriculture innovation system; ii) strengthening the national and regional research centers; iii) deepening and expanding regional research and development networking; and iv) modernizing national extension services and promoting technology access and exchange.

Sub-component 2.2 will strengthen regional food security through the use of Integrated Landscape Management (ILM) systems through i) the promotion of participatory ILM practices and techniques ii) enhancing the resilience of ecosystems and food systems in priority landscapes and iii) securing resilient eco- and food systems beyond priority landscapes.

Component 3: Enhancing regional food market integration and agricultural inputs and output trade - This component aims at expanding food trade in West Africa to enable an effective distribution of surplus produce to deficit regions. It will facilitate production and commercialization of agricultural products, inputs, and technologies within and across national borders.

There are two **Sub-components** under Component 3. Sub-component 3.1 aims at facilitating trade across key corridors and consolidating food reserve systems by supporting the preparation and implementation of sound

regional policies and regulations to strengthen the enabling environment for expanding regional agricultural output and input markets through i) harmonization of national agricultural trade policies with regional instruments; ii) building national capacity for agricultural trade negotiations; iii) developing an ECOWAS agricultural trade and market scorecard as well as; iv) improving regional food reserve system performance.

Sub-component 3.2 seeks to support the development of strategic and regional value chains i.e., (a) rice; (b) maize and (c) livestock (Poultry) with backward integration with the soya bean value chains through i) strengthening multi-stakeholder coordination and promotion of enabling environment for the private sector to thrive; ii) strengthening value chain organization and financing; and iii) supporting agricultural competitiveness and market access infrastructure.

Component 4: Contingency emergency response – This component aims at making available resources to strengthen the response capacity of the Government of Ghana in case of emergency. This involves making available funding to respond to eligible emergencies or crises, including pest and disease infestation such as the Fall Army Worm, locusts, swine fever, bird flu and other pandemics such as COVID-19; extreme droughts or floods; widespread and severe bush and wild land fires.

Ghana experienced longer dry spells between July and August 2024 which created drought conditions in eight (8) regions of the country with 4 severely impacted. The drought conditions have far-reaching implications for food security and livelihoods with the following notable consequences:

- **Food Shortage**: The affected regions contribute about 62% of the country's grain supply annually. However, from September to December, which coincide with the minor season of the southern sector, these regions which contribute about 85% of our national grain requirement will not have good weathers for planting new crops. Given the projected crop failure, MOFA forecasts a significant shortfall in food availability. This will lead to nationwide food shortage and its resultant implications.
- **Loss of Farmer Investment and Income**: Farmers investments have been wiped out and projected income will not be achieved. It is estimated that farmers in the affected areas have lost investments totalling approximately GHS 3.5 billion as well as potential revenue of GHS10.4 billion. With the level of damage experienced and the estimates coming in, MOFAs convinced to write off over 90% of total expected production, which will occasion an investment loss of GHS 7.4 billion for farmers and a revenue loss of GHS 22 billion.
- **Job Losses:** There will be job losses for persons engaged in the value chain from farm hands, aggregators, processors, traders and marketers among others.
- **Decline in Agriculture GDP**: The estimated production losses will lead to a 10% decline in agriculture GDP.
- **Security Threat**: The five northern regions are located closer to neighbouring countries that are more vulnerable to all forms of extremism. There is a significant risk of spread from these countries if the youth become unemployed, idle, and hungry and feel a sense of hopelessness in the absence of any intervention from Government.

In line with component 4 objective, the Government of Ghana through the MOFA has activated the Contingency Emergency Response Component (CERC) to cater for the mitigation measures outlined to support drought affected farmers and households countrywide. This support will mainly supply funding for inputs purchasing to encourage food production which will avert the potential food insecurity the country could face as a result of the drought event. ,

Component 5: Project management - This component involves establishing an effective coordination, management, monitoring and evaluation system for the project. These will include: (i) establishing and maintaining financial management and procurement systems; (ii) reporting on program activities; (iii) ensuring the full implementation of environmental and social risks and impacts management; (iv) maintaining and ensuring the performance of the monitoring and evaluation system; and (v) developing and implementing a knowledge management and communication strategy for development and study tours, among others.

1.3 CERC Positive List Activities

The positive list outlined in Table 1.1 is a summary of all the goods, services and works that could be undertaken for the management of emergencies which are eligible for financing per the FSRP2 CERC manual. However, this CERC will finance inputs consisting of fertilizer (NPK, Urea) and seeds (rice and maize) in the amounts of (i) US$60 million for input packages to the Southern sector, for the minor planting season, to support approximately 352,941 farmers, (ii) US$ 25 million for input packages to the Northern Region to support approximately 147,059 farmers facing delayed onset rains.

Table 1.1 presents a positive list that should be used for the procurement or reimbursement of already procured goods that might be required for the Government's emergency recovery effort, as well as services, works and operational costs.

Table 1.1: Positive list of Goods, Services and Works

Item
Goods
• Medical equipment and supplies • Non-perishable foods including grains, bottled and/or sachet water and containers • Tents for advanced medical posts, temporary housing, and classroom/daycare substitution • Equipment and supplies for temporary housing/living (gas stoves, utensils, tents, beds, sleeping bags, mattresses, blankets, hammocks, mosquito nets, kit of personnel and family hygiene, etc.) and schools • Gasoline and diesel (for air, land and sea transport) and engine lubricants • Spare parts, equipment and supplies for engines, transport, and construction vehicles. • Vehicles (Vans, trucks and SUVs) – (only eligible for import reimbursement) • Equipment, tools, materials and supplies for search and rescue (including light motorboats and engines for transport and rescue) • Tools and construction supplies (roofing, cement, iron rods, aggregates, blocks, etc.) • Equipment and supplies for communications and broadcasting (radios, antennas, batteries) • Water pumps and tanks for water storage • Equipment, materials and supplies for disinfection of drinking water and repair/rehabilitation of black water collection systems. • Equipment, tools and supplies for agricultural, forestry, and fisheries. • Feed and veterinary inputs (vaccines, vitamin tablets, etc.) • Agricultural inputs including seeds, fertilizers, and other agro-chemicals • Equipment or machinery for harvesting of agricultural products
Services
• Consulting services related to emergency response including, but not limited to urgent studies necessary to determine the impact of the disaster and to serve as a baseline for the recovery and reconstruction process, and support to the implementation of emergency response activities.

• Non-consultant services including, but not limited to: drilling, agricultural land preparation (ploughing, harrowing, seeding), agricultural extension advisory services, aerial photographs, satellite images, maps and other similar operations, information and awareness campaigns.
Works
• Repair of damaged infrastructure including, but not limited to: water supply systems, dams, reservoirs, canals, transportation systems, energy and power supply, telecommunication • Repair of damaged public buildings, including schools, hospitals, markets and administrative buildings, warehouses • Reconstruction of farm tracks and roads
Emergency Operating Costs
• Incremental expenses by the Government for a defined period related to early recovery efforts arising because of the impact of an emergency. This includes but is not limited to the costs of staff attending emergency response, operational costs and rental of equipment. • Staff engaged specifically to assist in the implementation of CERC activities – for the duration of the emergency response.

1.4 Rationale of the ESMF

The Environmental Assessment (EA) Regulations of Ghana, 1999 (LI 1652) provide the general framework and procedures for EA and environmental management of development actions. Most Development Partners (DPs) and funding institutions, including the World Bank, also have their respective EA requirements.

FSRP2 was appraised by the World Bank Environmental and Social Framework (ESF). As part of funding arrangements for the FSRP2, the Borrower is expected to comply with the World Bank Environmental and Social Standards (ESSs) as indicated in the Environmental and Social Commitment Plan (ESCP). The ESCP requires that as part of the contingent emergency response financing arrangement, CERC-ESMF is prepared as a framework to address all the potential environmental and social impacts as part of the Association withdrawal condition under Section IIIB of schedule 2 of the CERC financing agreement of the FSRP2 as the exact locations/sites of project implementation and the specifics of locations for the storage and distribution of the inputs are not yet confirmed.

The CERC- ESMF is relevant because it provides guidelines on processes and procedures to follow during project implementation to ensure compliance with the ESF and its ESSs. The seven (7) relevant ESSs of the ESF are:

- **ESS1:** Assessment and Management of Environmental and Social Risks and Impacts
- **ESS2:** Labor and Working Conditions
- **ESS3:** Resource Efficiency and Pollution Prevention and Management
- **ESS4**: Community Health and Safety
- **ESS6**: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- **ESS8**: Cultural Heritage
- **ESS10:** Stakeholder Engagement and Information Disclosure

The CERC-ESMF sets the stage to ensure that the environmental and social risks and impacts (ESRIs) associated with the implementation of the proposed activities under the CERC are properly assessed, managed, and monitored throughout the CERC intervention cycle.

1.5 Purpose of ESMF

The purpose of the ESMF is to establish a mechanism to determine and estimate the future potential environmental and social impacts of activities to be undertaken under the CERC interventions. The specific objectives of the ESMF are to:

a. Ensure that the proposed intervention project is carried out in accordance with the relevant Ghanaian laws and World Bank Environmental and Social Standards;
b. Assess the potential environmental and social impacts of envisaged sub-projects under the CERC component and propose a management framework comprising the measures to mitigate the negative environmental and social impacts and enhance the positive impacts of the project;
c. Establish clear procedures and methodologies for incorporating environmental and social management requirements throughout all the stages of the project implementation, including planning, design, execution and operations of subprojects;
d. Provide guidelines to appropriate roles and responsibilities and outline the necessary reporting procedures for managing and monitoring environmental and social concerns of the project and its sub-projects;
e. Determine the training, capacity building and technical assistance needed to successfully implement the provisions of this CERC-ESMF; and
f. Estimate the costs for the implementation of the Environmental and Social Management Framework for the CERC activities.

This CERC-ESMF has been prepared to ensure that interventions under CERC project activities are undertaken in a manner that avoids and minimizes environmental and social impacts as much as possible. It covers the:

i. Processes to be followed for environmental and social screening to guide decision-making;
ii. Process to be followed for conducting environmental and impacts assessment and preparation of Environmental and Social Management Plans (ESMPs) for selected subprojects;
iii. Preliminary assessment of anticipated environmental and social risks and impacts;
iv. Generic environmental social management measures to avoid, minimize and mitigate anticipated risks and impacts; and
v. Institutional arrangements for environmental and social management, including monitoring and reporting.

As and when required, this CERC- ESMF will be updated to capture any modifications to the CERC activities and the environmental and social arrangements for managing the potential Environmental and Social (E&S) risks of the CERC activities.

1.6 Approach and Methodology for ESMF Preparation

This CERC-ESMF has been prepared in accordance with the World Bank Environmental and Social Framework (ESF), World Bank Group General Environmental, Health and Safety Guidelines, EHSGs and the Ghana environmental assessment guidelines. It involved the following activities:

- Literature/Document review;
- Field visits/consultations with relevant institutions and potential implementing partners; and
- Information collation, analysis and preparation of report.

The range of stakeholders interacted with included:

- National Disaster Management Organization;
- District Department of Agriculture;
- Environmental Protection Agency;
- Ministries, Municipals and District Assemblies;
- Farmers, etc.

2.0 KEY POLICIES, LEGISLATIONS AND INSTITUTIONAL REQUIREMENTS

This section identifies policies, regulations, conventions, standards, guidelines and institutional requirements (national and international) and briefly reviews their relevance to the CERC- ESMF. These requirements are the same to those required by the parent ESMF. The policy, legal and institutional frameworks and requirements have been grouped under ten broad themes as follows:

1) National environmental policy and related requirements.
2) Agriculture and irrigation sector policies and requirements.
3) Water and sanitation sector policies and requirements.
4) National labour, gender, and human requirements.
5) National health and safety requirements.
6) National environmental quality standards.
7) World Bank requirements.
8) International requirements and conventions.
9) Institutional frameworks.

The distinctions between the WB ESSs and national policies and regulations have been done and specific measures to bridge these gaps have been outlined in (Table 2.6).

2.1 National Environmental Policy and Related Requirements

2.1.1 National Environmental Policy, 2013

The Environmental Policy of Ghana builds on the previous one, which hinged on 'prevention' as the effective tool for environmental protection, by requiring prior environmental assessments of all developments. The vision of the policy which is based on an integrated and holistic management system for the environment, seeks to unite Ghanaians in working towards a society where all residents have access to sufficient and wholesome food, clean air and water, decent housing and other necessities of life; and that further enable them to live in a fulfilling spiritual, cultural and physical harmony with their natural surroundings. This new paradigm of sustainable development intends to ensure:

- Citizens' quality of life and their living and working environments;
- Equal access to land and other natural resources; and
- Public participation and environmental governance.

2.1.2 National Environmental Action Plan, 1991

The policy aims at ensuring 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. Implementation of CERC interventions will therefore ensure that the environment is not over exploited, and ecosystems are not destroyed as farmers cultivate the fields.

2.1.3 Environmental Protection Agency Act, 1994 (Act 490)

The Environmental Protection Agency Act, 1994 (Act 490) grants the EPA the mandate to ensure compliance with the Ghana Environmental Assessment (EA) requirements and procedures. Additionally, the Agency is

required to control and monitor the generation, treatment, storage, transportation and disposal of waste, and the use and advice on regulation and management of hazardous substances.

The Agency is also vested with the power to determine an 'adverse effect on the environment' or an activity posing 'a serious threat to the environment or public health and to regulate and serve an enforcement notice for any offending or non-complying activity. The Agency is also required to monitor and verify compliance with permit conditions of approved developments. The operations of this CERC intervention will therefore comply with the EPA standards and must always subject itself to the Agency for any inspection particularly with regards to agrochemical purchasing.

2.1.4 Environmental Assessment Regulations 1999 (LI 1652)

The Environmental Assessment Regulations, 1999 (LI 1652) prohibit commencing an "undertaking" without prior registration and environmental permit. Undertakings/activities are grouped into Schedules to facilitate screening and registration through the EA system. The schedules include undertakings requiring registration and environmental permit (Schedule 1), EIA mandatory undertakings (Schedule 2), and Schedule 5-relevant undertakings (i.e. proposals located in or near Environmentally Sensitive Areas) in Ghana. The regulations require submission of Annual Environmental Reports (AER) and Environmental and Management Plans (EMP) for the implementation phase of approved undertakings. This CERC-ESMF will serve as a guiding instrument to comply with the requirements of the EPA under this emergency.

2.1.5 Fees and Charges (Amendment) Instrument, 2019 (LI 2386)

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. Fee invoices are duly issued by EPA and paid for prior to issuance of an environmental permit. Fees for permits will be paid in accordance with this instrument.

2.1.6 National Sanitation Policy, 1999

The National Sanitation Policy 1999 aims at developing and maintaining a clean, safe and pleasant physical environment in all human settlements, to promote the social, economic and physical well-being of all sections of the population. The principal components of the policy include:

- Collection and disposal of waste e.g. solid and liquid, excreta, hazardous waste;
- Storm-water drainage; and
- Control of pests and vectors of disease.

The CERC intervention of crop production may generate waste and there will be the need to control pest and disease vectors, farmers are therefore required to comply with the regulation.

2.2 Agriculture, Food and Trade Related Policies

2.2.1 Food and Agriculture Sector Development Policy (FASDEP II), 2007

The revised policy (FASDEP II) emphasises the sustainable utilization of all resources and commercialization of activities in the sector with market-driven growth in mind. It however targets fewer commodities for food security and income diversification, especially of resource poor farmers. Enhancement of productivity of the commodity

value chain, through the application of science and technology, with environmental sustainability been emphasized. The fewer commodities targeted for poor farmers to be promoted under the CERC intervention include maize and rice.

2.2.2 Plants and Fertilizer Act, 2010 (Act 803)

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. This CERC intervention will procure fertilizers and seeds, hence the relevance of this Act.

2.2.3 Pesticide Control and Management Act, 1996 (Act 528)

This Act provides for the control, management and regulation of pesticides in Ghana and to provide for related matters. The Act provides requirements for the registration of pesticides and that no person shall import, export, manufacture, distribute, advertise, sell or use any pesticide in Ghana unless the pesticide has been registered by the Environmental Protection Agency in accordance with the Act. The Environmental Protection Agency may approve and register a pesticide subject to such other conditions as it may determine and may only register a pesticide if it is satisfied that the pesticide is safe for the use for which it is intended, and that the pesticide has been tested for the efficacy and safety under local conditions. The purchasing of agrochemicals and the management thereof (including transportation, storage, usage and disposal) during the implementation of the CERC intervention must adhere to this Act. Only pesticides duly registered by the EPA will be purchased from registered suppliers.

2.3 Water Related Policies, Legislations and Regulations

2.3.1 Riparian Buffer Zone Policy, 2014

This outlines a national policy on buffer zones in managing river basins in an integrated manner and harmonizing the existing standards on buffer zones in Ghana. It aims at ensuring all designated buffer zones along rivers, streams, lakes, reservoirs, and other water bodies are sustainably managed, as well as conserve, protect, restore and maintain the ecology of such areas. It also seeks to establish vegetation in riparian buffer zones to improve water quality by controlling activities along the riverbanks and generally in catchments of surface water bodies. No activities of CERC intervention will be permitted within the buffer zones of water bodies in the country.

2.4 National Labour, Gender and Human Rights Requirements

2.4.1 National Gender Policy, 2015

The National Gender Policy overarching goal is to mainstream 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 particularly women, girls, children, the vulnerable and people with special needs; persons with disability and the marginalized. In this regard, the CERC-ESMF will ensure that the intervention on fertilizer distribution focused and provide equal opportunity for all.

2.4.2 Labour Act, 2003 (Act 651)

The purpose of the Labour Act, 2003 (Act 651) is to amend and consolidate existing laws relating to labour, employers, trade unions and industrial relations. The Act provides for the rights and duties of employers and workers; guarantees trade unions and freedom of associations and establishes the Labour Commission to mediate and act in respect of all labour issues. The provisions under Part XV (Occupational Health, Safety and Environment), where the Act explicitly prescribes the duty of an employer to ensure that every worker works under satisfactory, safe and healthy conditions, is relied on extensively to cater for workers at both construction and operation phase of a project. This Act will apply to all labour to be used for the CERC intervention activities from transportation to storage and distribution of inputs. Commercial farmers who also use labour will adhere to this regulation.

2.4.3 National Employment Policy, 2012

The policy indicates 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 promote farm and non-farm rural employment through modernisation of agriculture, improving the productivity of farmers and contract farming arrangements, promoting effective linkages between farm and non-farm activities among others. This Act will apply to especially large-scale farmers who will employ labour and mechanisation services for their farming activities.

2.4.4 Children's Act 1998 (Act 560)

The Children's Act is an Act to reform and consolidate the law relating to children, to provide for the rights of the child, maintenance and adoption, define child labour and regulate apprenticeship, for ancillary matters concerning children generally and to provide for related matters. The Act defines statutory functions related to responding to abuses and protecting children's best interests, which are important to take into account in responses to potential cases of child labor, SEA/SH of children identified in connection to the CERC-intervention. Section 87 of this Act specifically states that "No person shall subject a child to exploitative labour", therefore no activities of CERC shall engage children below the working age.

2.4.5 Workmen's Compensation Law, 1987 (PNDCL 187)

The Workmen's Compensation Law 1987 (PNDCL 187) holds employers responsible for the payment of compensation to workmen for personal injuries caused by accidents arising out and in the course of their employment. Where an employee sustains personal injury by accident arising out of, and in the course of employment, the employer is liable, subject to this Act, to pay compensation in accordance with this Act. This Act will therefore apply to farmers who employ staff for their operation.

2.4.6 Persons with Disability Act, 2006 (Act 715)

The Persons with Disability Act, 2006 (Act 715) provides certain rights to protect persons with disability. The Act states that a person or an employer shall not:

- Discriminate against or subject a person with disability to degrading treatment;
- Call a person with disability derogatory names because of the disability of the person;
- Discriminate against a prospective employee or an employee on grounds of disability, unless the disability is in respect of the relevant employment; and

- Post or transfer a person with disability to a section or place of the establishment not suited for the person.

The CERC activities will therefore seek to provide an avenue that allows people living with disability enjoy equally the project outcomes.

2.4.7 Data Protection Act, 2012 (Act 843)

The Data Protection Act, 2012 (Act 843) sets out the rules and principles governing the collection, use, disclosure and care for personal data or information by a data controller or processor. The Data Protection Commission established by this Act is an independent statutory body to ensure and enforce compliance. The CERC emergencies support system will involve the collection of significant data in drought affected farmers and their household, the right of individuals will the respected as stipulated in this Act.

2.5 International Requirements, Environmental and Social Standards, Conventions and Agreements

2.5.1 World Bank Group Environmental and Social Framework

The 10 Environmental and Social Standards (ESSs) for sustainable development in the ESF and their relationship with the CERC intervention is summarized in Table 2.4 below.

Table 2. 1 Summary of Environmental and Social Standards of the ESF

Policy	Summary of Core Requirements	Relevant
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	ESS1 sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with all stages of a project supported by the Bank	**Yes** All CERC activities must be assessed for E&S risks and impacts and appropriate E&S measures proposed to address identified risks and impacts.
ESS2: Labour and Working Conditions	ESS 2 recognizes how Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working Conditions. ESS2 defines an obligation to prevent and mitigate child labor.	**Yes** Provisions related to child labor are particularly relevant for the specific sector (agriculture) of the project, given that most child labor in Ghana takes place in this sector.
ESS3: Resource Efficiency and Pollution Prevention and Management	This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life-cycle since economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people and ecosystem services.	**Yes** Relevant to CERC activities that may affect natural resources from the environment and activities such as the use of pesticides and fertilizers with the potential to pollute environmental media

ESS4: Community Health and Safety	ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.	**Yes** CERC activities such as crop production, etc will be implemented in communities and could have potential risks and impacts on inhabitants of these communities E,g transportation of inputs to districts
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	This ESS emphasizes that involuntary resettlement should be avoided. Where involuntary resettlement is unavoidable, it will be minimized and appropriate measures to mitigate adverse impacts on displaced persons (and on host communities receiving displaced persons) will be carefully planned and implemented.	**No** No proposed CERC intervention will require land acquisition or involuntary resettlement
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	This ESS recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. It addresses sustainable management of primary production and harvesting of living natural resources and recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a project.	**Yes** The use of agrochemicals supplied by the CERC could be deleterious to insects and biodiversity in general.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.	This ensures that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	**No** There are currently no groups of persons that fit into the definition of indigenous people in the project areas
ESS8: Cultural Heritage	This recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. It sets out measures designed to protect cultural heritage throughout the project life cycle.	**Yes** There is a high chance of encountering cultural heritage issues on sites selected for crop cultivation by the affected farmers especially for the commercial farmers, since Ghana is a country with rich culture resources.

ESS9: Financial Intermediaries (FIs)	FIs are required to monitor and manage the environmental and social risks and impacts of their portfolio and FI subprojects, and monitor portfolio risk, as appropriate to the nature of intermediate financing. The way in which the FI will manage its portfolio will take various forms, depending on several considerations, including the capacity of the FI and the nature and scope of the funding to be provided by the FI.	**No** The project design does not foresee the need for a financial intermediary during project implementation
ESS10: Stakeholder Engagement and Information Disclosure	This recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice.	**Yes** This CERC intervention will have many stakeholders with various interests which ought to be managed using a stakeholder engagement plan

2.8.2 World Bank Group General Environmental, Health and Safety Guidelines

The WBG General Environmental Health and Safety (EHS) Guidelines is a technical reference document containing information on cross-cutting environmental, health and safety issues potentially applicable to all industry sectors. The general guidelines applicable to CERC intervention are:

- Environmental;
- Occupational Health and Safety;
- Waste Management; and
- Community Health and Safety.
-

2.5.3 WBG EHS Guidelines for Annual Crop Production

The EHS Guidelines for Annual Crop Production includes information relevant to large-scale production, harvesting, post harvesting processing and storage of major annual crops, including maize, pulses, roots and tubers, oil-bearing crops, fiber crops, vegetables, and fodder crops, located in both temperate and tropical regions. It does not include the processing of raw materials into semi-finished and finished products. Farmers will be supported to cultivate these annual crops hence the relevance of this guideline

2.5.4. World Bank Environmental and Social Framework vs Ghanaian Environmental Assessment Policies

Table 2. 2 Measures to bridge Gap between WB ESSs and Ghana EA Safeguards Policies

Environmental and Social Standard	Summary of Core Requirements of ESSs	Ghana Environmental Assessment Policy	Measures to Bridge Gap
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	ESS1 sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with all stages of a project supported by the Bank	The Environmental Protection Agency Act, 1994 (Act 490) and Environmental Assessment Regulations, 1999 (LI 1652). These require assessment of all projects with potential environmental and social impacts	Clear guideline should be provided for the need for timely and effective consultation, timely and responsive grievance mechanism and adequate consideration of project affected persons and communities in stakeholder engagement
ESS2: Labour and Working Conditions	ESS 2 recognizes how Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. ESS2 defines an obligation to prevent and mitigate child labor and prohibits engagement of children under 14 years for work unless national legislation defines a higher standard. It prohibits hazardous work for children under 18 years.	Labour Act, Act 651 (2003): Part XV, Section 118 (1) and (2a-h) of the Act requires employers to ensure that every worker employed by him or her works under satisfactory safe and healthy conditions, and is further obliged to provide necessary information, instructions, training and supervision to ensure the health and safety at work of those other. Workmen Compensation Act (1987); Factories, Offices and Shops Act, Act 328 (1970) Children's Act. Ghanian legislation allows for light work from age 13, employment from age 15 and hazardous work from age 18. which is Child labor in	Focus on child labor and forced labor on beneficiary farms will be key. The minimum age for light work shall be 14 years, as per ESS2, 15 for employment and 18 for hazardous work as per ESS2 and domestic legislation (Labour Act and Children's Act). Training shall be provided to all implementing partners on the definition of child labor and on appropriate measures to respond to child labor cases. The large scale farmers shall undertake age-verification of workers, and keep records of workers names and ages. They shall sign a code of conduct to prevent child labor and shall receive written parental consent before engaging anybody below 18 in work on the project.

Environmental and Social Standard	Summary of Core Requirements of ESSs	Ghana Environmental Assessment Policy	Measures to Bridge Gap
ESS3: Resource Efficiency and Pollution Prevention and Management	This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life-cycle since economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people and ecosystem services.	The Environmental Protection Act 1994 (Act 490), Part I of the Act include the environmental permits and pollution abatement notices and the prescription of standards and guidelines. Part II of the Act sets out provisions for enforcement and control. The Act empowers the EPA to appoint "Environmental Protection Inspectors" and any other employees necessary to provide the functions of the Act Water and Sewerage Corporation Act, Act 310 (1965) & Environmental Sanitation Policy (1999): These policies cover both solid waste management and sewage. Pesticides Control and Management (regulated under Part II of the EPA Act 490 (1994))	While there are policies in Ghana to address waste and pollution issues, there are challenges in the effective implementation of these policies. More focus must be put on effective waste management, water management and prevention of pollution by fertilizers and pesticides, and efficient use of natural resources.
ESS4: Community Health and Safety	ESS4 address the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.	The Environmental Protection Agency Act, 1994 (Act 490) and Environmental Assessment Regulations, 1999 (LI 1652) require that the public and community members are consulted during project development and implementation to enhance proposed mitigation measures put in place to safeguard public health (Labour Act 651 (2003)	Beyond consultation with project affect communities stated in LI 1652, there is a need to give more attention to vulnerable groups in drought affected communities
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	This ESS emphasizes that involuntary resettlement should be avoided. Where involuntary resettlement is unavoidable, it will be minimized and appropriate measures to mitigate adverse impacts on displaced persons (and on host communities receiving displaced persons) will be carefully planned and implemented.	The State Lands Act, 1962 (Act 125); Lands Commission (LC) Act 2008, Act 767; The Lands (Statutory Wayleaves) Act, 1963, Act 186; Land Use and Spatial Planning Act, 2016 (Act 925)	Not required in this CERC intervention.

Environmental and Social Standard	Summary of Core Requirements of ESSs	Ghana Environmental Assessment Policy	Measures to Bridge Gap
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	This ESS recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. It addresses sustainable management of primary production and harvesting of living natural resources and recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a project.	The Wild Animals Preservation Act 235 (1964) enforced by the Wetland Management (RAMSAR sites) Regulation, (1999); The Wild Reserves Regulations LI 740 (1971); Forestry Commission Act, 571 (1999); Fisheries Commission Act, 457 (1993); Fisheries Act, 625 (2002)	Screening should involve the determination of Critical or Natural Habitat. More attention should be given to the protection of livelihood sources for project affected parties during the implementation of CERC activities.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	This ensures that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	No provisions for indigenous people	Not required as there are no identified indigenous people in the drought affected areas
ESS8: Cultural Heritage	This recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. It sets out measures designed to protect cultural heritage throughout the project life-cycle.	Environmental Assessment Regulations (1999), LI 1652; Ghana National Museum Act, 1969 (NLCD 387)	More must be done to address the protection of intangible cultural heritage during land preparation for crop cultivation on new fields.

Environmental and Social Standard	Summary of Core Requirements of ESSs	Ghana Environmental Assessment Policy	Measures to Bridge Gap
ESS10: Stakeholder Engagement and Information Disclosure	This recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice.	Environmental Assessment Regulations, 1999 (LI 1652) Sections 15 and 17 require a proponent to initiate a public information and consultation program for the area likely to be affected by the undertaking	The use of the Stakeholder Engagement Plan is an add on to the public information and consultation program which should be focused on. The Grievance Mechanism Committee of the parent FSRP in these affected areas shall be used to address any grievances arising from CERC intervention implementation.

2.6 Regional Policies and Frameworks

2.6.1 Cadre Harmonisé Framework

The Cadre Harmonisé (CH) is a regional framework aimed at preventing food crisis by quickly identifying affected populations and proffering appropriate measures to improve their food and nutrition security. The CH is a set of functions and protocols for analysing the severity of acute food and nutrition insecurity to inform decision-making, and to provide appropriate urgent responses. The CH helps to answer the key questions policy-makers face during food and/or nutrition crises. It fits into the overall framework of early warning and prevention of food and nutrition crises by answering the following questions:

- How severe is the situation?
- How many people are affected?
- When to intervene?
- Where to intervene first?
- What are the key drivers and limiting factors?
- For whom should we intervene? and
- Which action is needed?

This framework is relevant for the implementation of the CERC as initial assessment of the situation was done in line with the above questions.

2.6.2 Water Charter for the Volta River Basin

The purpose of the Water Charter is to set out the principles, procedures, rules and modalities for the equitable, coordinated, and sustainable use of shared water resources in the Volta Basin, in accordance with the mandate of the Volta Basin Authority. The State Parties to the Water Charter are to cooperate on the basis of the principles of international law for the Authority to fulfil legally binding obligations.

The types of use of the Basin's shared water resources include any requirements the Authority deems to be necessary or legitimate and specifically for:

- Drinking water supply and sanitation;
- Agriculture, industry and energy;
- Navigation and transport; and
- Tourism and recreational activities.

This charter will apply for affected farmers farming long the volta river basin for the agricultural sector.

2.7 International Conventions

The international conventions, to which Ghana is signatory, relevant to this CERC are presented in the following Table 3.7.

Table 2. 3 International Conventions relevant to FSRP2

Convention	Main Characteristics	Participation of Ghana
Atmospheric Area		
UN Framework Convention on Climate Change	To stabilize the concentration of greenhouse gases in the atmosphere at a level that should prevent dangerous anthropogenic interference with the climate system. This level	S = June 12th, 1995
(UNFCCC) (Rio, June 1992)	should be reached in sufficient time for ecosystems to adapt naturally to climate change, food production would not be threatened and economic development could continue in a sustainable.	AR = September 6, 1995
The Montreal Protocol (1987)	The Montreal Protocol is a global agreement to protect the stratospheric ozone layer by phasing out the production and consumption of ozone-depleting substances (ODS).	S = 24th February, 1988
Protection of Biodiversity		
African Convention for the conservation of nature and natural resources (Algiers, September 15, 1968)	The African Convention on the Conservation of Nature and Natural Resources is the primary Pan-African legal instrument for the conservation of the environment in general and biodiversity in particular, including birds. Its objective is to improve environmental protection, promote conservation and sustainable natural resource use, as well as to synthesise and coordinate resident policies with an eye to develop policies and programs that are ecologically reasonable, economically sound and socially acceptable. The Convention provides measures to ensure conservation, use of soil, water, flora and fauna resources in accordance with scientific principles and taking into account the best interests of the people. These provisions illustrate a forward-looking treaty which is well in tune with the wide conservation objectives of the Convention on Biological Diversity (CBD). The Contracting States shall ensure conservation, wise use and development of faunal resources and their environment, within the framework of land-use planning and of economic and social development.	R = July 20, 2007 S = October 31, 2003

Convention	Main Characteristics	Participation of Ghana
UN Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (Paris, June 17, 1994)	Aims to fight desertification and eradicate the effects of drought in countries severely affected by the problem through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements.	R = December 27, 1996 S = October 15, 1994
Convention on Biological Diversity (CBS, December 29th, 1993)	The Convention on Biological Diversity underlines that threats to biological diversity had increased everywhere in the world, mainly as a result of the continuing destruction of natural habitats. It has 3 main objectives: - The conservation of biological diversity; - The sustainable use of the components of biological diversity; - The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.	R = August 29,1994 S = June 12, 1992
Convention on Migratory Species of Wild Animals (CMS), Bonn, 1979	The CMS focuses its efforts on a list of migratory species that are either endangered or threatened. It focuses on the protection of migratory species (not only birds, but also mammals and invertebrates) in recognition of the fact that protection is needed throughout every part of migratory ranges and that this requires international conservation agreements. Each party seeks to prohibit or restrict taking migratory species, to limit the degradation of habitats, the introduction of invasive species, and any other activity or condition that may block migration or disrupt migratory species, and to enter into separate international agreements concerning certain specific migratory species or groups of species whose ranges or migration routes extend over areas under party jurisdiction.	R = January 19, 1988
International Plant Protection Convention	Aims to secure coordinated, effective action to prevent and to control the introduction and spread of pests of plants and plant products. The Convention extends beyond the protection of cultivated plants to the protection of natural flora and plant products. It takes into consideration both direct and indirect damage by pests, so it includes weeds.	A= 22nd Feb, 1991
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention, 1971)	To assure reasonable and sustainable use of resources in wetlands, particularly by designating wetlands of international importance, and guaranteeing resource conservation, now and in the future.	R = February 22, 1998
Cultural Heritage		

Convention	Main Characteristics	Participation of Ghana
World Heritage Convention	The Convention links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two.	S = November 16, 1972 R = July 4, 1975
Convention for the Safeguarding of the Intangible Cultural Heritage	A purpose to safeguard the uses, representations, expressions, knowledge and techniques that communities, groups and, in some cases, individuals, recognise as an integral part of their cultural heritage.	R = February 4, 2016
Social Inclusion and Social Risks		
Forms of Discrimination against Women (CEDAW, 1979)	dignity and worth of the human person and in the equal rights of men and women.	R = January 2, 1986
Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol)	The Maputo Protocol guarantees comprehensive rights to women including the right to take part in the political process, to social and political equality with men, improved autonomy in their reproductive health decisions, and an end to female genital mutilation.	R = June 13, 2007 S = October 31, 2003
Convention on the Rights of the Child, 1989	Commitment to defend and guarantee the rights of children and to meet these commitments before the international community. States which are members of the Convention are required to develop and implement measures and policies which consider the best interests of the child.	R = February 5, 1990 S = February 5, 1990
Convention on the Rights of Persons with Disabilities, 2006	A purpose to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms of persons with disabilities and to promote respect for their inherent dignity	S = March 2007 R = August 21, 2012
Workers' Rights		
Convention on Discrimination (Employment and Occupation), 1958	Enables legislation which prohibits all discrimination and exclusion on any basis including of race or colour, sex, religion, political opinion, national or social origin in employment and repeal legislation that is not based on equal opportunities.	R = April 4, 1961
C138 – Minimum Age Convention, 1973 (No. 138)	Defines minimum age for light work and employment. Light work is defined as work for limited hours and not harming the health, safety or school attendance and achievement. Children above the minimum working age / minimum age for employment (between 15-18 in most countries) can work full time so long as they are not doing work which is considered a "Worst Form of Child Labour"	R = June 2011

Convention	Main Characteristics	Participation of Ghana
C182 – Worst Forms of Child Labour Convention (No. 182)	Defines the Worst Forms of child Labour to be all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict; the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children	R = June 2000
Other Conventions (health, pesticides, hazardous waste and chemicals)		
International Code of Conduct for The Distribution and Use of FAO Pesticides	The code encourages voluntary standards of conduct for all public and private entities engaged in or associated with the distribution and use of pesticides, particularly where there is inadequate or no national legislation to regulate pesticides. To achieve this objective, it promote practices which reduce risks in the handling of pesticides, including minimizing adverse effects on humans and the environment and preventing accidental poisoning resulting from improper handling; ensure that pesticides are used effectively and efficiently for the improvement of agricultural production and of human, animal and plant health; adopt the "life-cycle" concept to address all major aspects related to the development, regulation, production, management, packaging, labelling, distribution, handling, application, use and control, including post registration activities and disposal of all types of pesticides,	N/A
	including used pesticide containers; and are designed to promote Integrated Pest Management (IPM) (including integrated vector management for public health pests)	
Rotterdam Convention	The Rotterdam Convention provides Parties with a first line of defence against hazardous chemicals. It promotes international efforts to protect human health and the environment as well as enables countries to decide if they want to import hazardous chemicals and pesticides listed in the Convention. Together with the Stockholm and Basel conventions and FAO's voluntary Code of Conduct, the Rotterdam Convention promotes a life cycle approach and provides the necessary tools for managing pesticides.	S = 11 September, 1998 R = 30th May, 2003 AA = 30th May, 2003
Basel Convention	The Basel Convention was created to protect people and the environment from the negative effects of the inappropriate management of hazardous waste worldwide. It is the most comprehensive global treaty dealing with hazardous wastes from its generation, transport to disposal.	R = 9th June, 2005 DE = 5th December, 2019
Stockholm Convention	The Stockholm Convention is a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals by restricting and ultimately eliminating their production, use, trade, release and storage	S = 23rd May, 2001 R =30th May, 2003

Convention	Main Characteristics	Participation of Ghana
International Standards for Phyto-sanitary Measures (ISPM) FAO	Promotes sanitary and phyto-sanitary measures that aims at the protection of human, animal or plant life or health from certain risks.	N/A
The International Treaty on Plant Genetic Resources for Food and Agriculture	The objective of the International Treaty on Plant Genetic Resources for Food and Agriculture are the conservation and sustainable use of all plant genetic resources for food and agriculture and equitable sharing of the benefits arising out of their use, in harmony with the Convention of Biological Diversity, for sustainable agriculture and food security.	N/A
African Convention on the Conservation of Nature and Natural Resources (Revised) Algier, 1968	The objective of this convention is to enhance environmental protection, foster the conservation and sustainable and use of natural resources and harmonise and coordinate policies in these fields.	S = 7th April 1969
Signature = S; Ratification = R; Accession = A; Authorisation for ratification or accession = AR Letters of ratification = LR; Participation = P; Letters of accession = LA. N/A: Not Available.		

2.8 Institutional Framework

2.8.1 Ministry of Food and Agriculture

The Ministry of Food and Agriculture (MOFA) is the ministry responsible for the development and growth of agriculture. The primary roles of this ministry are the formulation of appropriate agricultural policies, planning and coordination, monitoring and evaluation within the overall economic development. Currently, MOFA has the following technical directorates:

- Directorate of Crops Services (DCS);
- Directorate of Agricultural Extension Services (DAES);
- Plant Protection and Regulatory Services Directorate (PPRSD);
- Veterinary Services Directorate (VSD);
- Animal Production Directorate (APD); and
- Women in Agricultural Development (WIAD).

The CERC intervention shall be coordinated by the FSRP2 Project Implementing Unit (PIU) in collaboration with some Directorates of MOFA (PPMED and PPSRD). The PIU will manage day-to-day implementation of the CERC activities in collaboration with staff of the District Departments of Agriculture. The staff filled are Project Coordinator, Operation Manager, Environmental Specialist, Social Specialist, Procurement Specialist Financial Management Specialist and Accountants, Monitoring and Evaluation Specialist, Communication and Knowledge Management Specialist, and Agri-Economist Specialist.

2.8.2 Ghana Meteorological Agency

Ghana Meteorological Agency (GMet) is a governmental agency under the Ministry of Communication mandated to offer weather and climate services, to analyze scientific research findings and provide guidance on

climate change. The GMet provide efficient and reliable meteorological information by collecting, processing, archiving and disseminating meteorological information to end-users. This information is important in farmers production planning and provide early warning of natural disasters such as drought, flooding which can be used for CERC activities planning.

2.8.3 Ministry of Local Government and Rural Development

The Ministry of Local Government and Rural Development exists to promote the establishment and development of a vibrant and well-resourced decentralised system of local government for the people of Ghana to ensure good governance and balanced rural based development. The CERC interventions will be implemented in the 8 regions which are all under this Ministry.

2.8.4 Metropolitan /Municipal/District Assemblies (MMDAs)

The Metropolitan/ Municipal/ District Assemblies are the planning authorities, charged with the overall development of the metropolis/municipal/districts and some social risk management functions, such as citizen participation/stakeholder engagement, complaints (grievances), and child labour monitoring (role defined for Social Services Sub-Committees in informal sector). A key feature of the Assembly System is the involvement of communities or zones or whole villages who elect their representatives (Assembly Members) to the Assembly. The structure of the Assembly comprises Unit Committees which are usually formed at the community levels, and the Urban/Town/Area Councils. These Assembly members will play a key role in the mobilisation of beneficiary farmers for the distribution of inputs.

2.8.5 National Disaster Management Organisation (NADMO)

The National Disaster Management Organization (NADMO) under the Ministry of the Interior was established by ACT 517 of 1996 with the responsibility to manage disasters and similar emergencies in the country. The mandate of the NADMO includes all activities from preparedness to response and recovery, prevent disasters, create awareness in prone communities and institutions on all hazard/disaster types, train and motivate the communities especially volunteers to initiate actions to prevent and respond to disasters; bring relief to disaster victims, assist to reduce poverty in vulnerable and poor communities through social mobilisation for employment creation and income generation.

2.11.6 Development Partners

The Government of Ghana works with many Developmental Partners (DPs) in achieving its development goals. These DPs support development by planning, financing, implementing and monitoring of developmental activities which include recovery of disaster such as drought, flood, etc. Key partners in agriculture are the World Bank, World Food Programme, Food and Agriculture Organisation, Ministry of Finance, Selected media houses etc.

3.0 CERC INTERVENTION DESCRIPTION

The Government is implementing immediate measures, including the activation of the FSRP2 CERC to support the procurement and distribution of fertilizers and seeds for farmers to reduce the risk of food insecurity because of the prolonged dry spell in the 2024 farming season.

3.1 Input Supply to Farmers

The government will mobilise 118,00MT of fertilizers and 5,133MT of seeds for smallholder (i.e. farmers cultivating less than 2 acres) nationwide. It is expected that each farmer will receive 2 bags of NPK, 1 bag of Urea and either maize (10kg) or rice (40kg) seeds in the Northern Sector and about 5 bags of NPK and 2 bags of urea per Ha (2.5 acres) for up to 5Ha. About 20,000 MT of fertilizers will also be distributed to commercial farmers nationwide. Each commercial farmer is expected to receive up to 50 bags of NPK and 25 bags of Urea. Of the 85 USD financing opportunity, 60 million USD worth of input will be supplied to Southern Ghana and 25 million USD worth of inputs supplied to the Northern Sector.

The application of these inputs is expected to lead to the production of approximately 360,000 MT of paddy rice and 770,000 MT of maize in about 120 days of cultivation.

3.1.1 Input Procurement

The procurement of the inputs will be facilitated by MOFA and FSRP2 using the Worl Bank Procurement Regulations under emergency condition as outlined in the FSRP2 CERC manual and will ensure that all suppliers are duly registered with the EPA. Stocks of Suppliers who win bids will be inspected by the PPRSD to ensure that they meet the required standards before they are transported and distributed to farmers.

3.1.2 Mode of Transportation and Storage of Inputs Supplied

The procured inputs will be transported by trucks from the suppliers' warehouses to regional MOFA warehouses and other temporally secured holding structures (pallets and tarpaulin) at the various regions. The various MMDAs will be expected to support the process by allowing the District Road Improvement Project (DRIP) trucks to pick up the inputs from the regional Holding Centres to their Districts. The warehouses for the inputs will be manned by MOFA at the District and the District Department of Agriculture (DDAs) at the district level.

3.2 Eligibility Criteria of Farmers

All farmers are open for support from both the Northern and Southern sectors of Ghana; however, a farmer must be fully registered on the Ghana Agriculture and Agribusiness Platform (GhAAP) of MOFA to be fully eligible. The farmers are expected to register on the GhAAP using their national identity cards. To ensure that drought effected farmers are adequately captured, registration initiative will include a call to all affected farmers to contact their District Departments of Agriculture to get them enrolled on the national digital platform (GhAAP). MOFA intends to use GhAAP for transparency and accountable distribution of the inputs which will also aid easy verification and tracking in the future.

3.3 Distribution of Inputs to Farmers

Inputs that arrive at the district level are expected to be distributed to the farmers using the Relief Mobile Application. Mostly, DDAs Extension Agents who have been equipped with tablets will be responsible for the distribution of the inputs to the farmers. The following steps will be taken to give items to the farmers:

a. Select the farmer from the beneficiary list from GhAAP;
b. Send SMS to the farmers on the date, location and time of meeting;
c. Take a picture of the farmer's Ghana Card/Voter ID;

d. Take a picture of the farmer;
e. Upload the images;
f. Select items to be distributed (partial or full); and
g. Give out the items and complete the distribution.

3.4 Supervision of Distribution of Inputs

A team of technical experts (PPSRD, FSRP2 ESRM Unit, Extension etc.) will coordinate the transportation, storage and distribution of the Inputs to ensure that the activity is done in an environmentally sustainable and socially acceptable manner in the beneficiary communities.

MOFA will also set up monitoring and experiential learning teams made up of personnel from the Ministry of Food and Agriculture and FSRP M&E units, World Food Programme, Ministry of Finance, the World Bank, the Agriculture and Finance Committees of Parliament, Civil Society Organizations, and select media houses. Their role is to ensure that the implementation is carried out effectively, provide to Ghanaians that farmers have received the necessary support and that farming activities have been fully restored.
There is also a high-level oversight committee made up of: the Ministers of Agriculture, Finance, Defence and Local Government and the Dean of Regional Ministers who will periodically visit the site to assess the situation on the ground.

4.0 ENVIRONMENTAL AND SOCIAL BASELINE

The CERC Project activities are national in outlook considering that all farmers in the country will be eligible to receive the support to boost local food production cross the length and breadth of the country. The CERC activities will therefore be implemented in all the sixteen (16) regions of Ghana. Information on the environmental and social baseline conditions are presented below.

4.1 Location and Size

Ghana is situated on the west coast of Africa and lies within longitudes 3°5'W and 1° 10'E and latitudes 4°35'N and 1I°N, with a total area of 238,540 km^2. The country has a north-south extent of about 670 km and a maximum east-west extent of about 560 km. It shares borders with Côte d'Ivoire to the west, Burkina Faso to the north, and Togo to the east. To the south are the Gulf of Guinea and the Atlantic Ocean. The country is divided into 16 administrative regions and 254 Metropolitan, Municipal and District Assemblies (MMDAs).

4.2 Population

The current population of Ghana is 29,884,261 as of March 3, 2019, based on the latest United Nations estimates. Ghana's population is equivalent to 0.39% of the total world population. Ghana ranks number 48 in the list of countries (and dependencies) by population. The population density in Ghana is 132 per km^2 (343 people per sq. miles). The total land area is 238,540 km2 (87,854 sq. miles) 54.8 % of the population is urban (16,507,512 people in 2019).

There is a growing consensus in Ghana that while rapid population growth may not prevent economic growth, economic improvements will occur more rapidly without this obstacle. Ghana has a youthful population, thus consisting of a large proportion of children under 15 years, and a small proportion of elderly persons (65 years and older). The proportion of the population living in urban areas is 50.9 percent, with the level of urbanisation varying from region to region.

In terms of ethnicity, Akans are the predominant ethnic group in Ghana (47.5%), followed by the Mole Dagbani (16.6%), the Ewe (13.9%) and Ga-Dangme (7.4%). The Mande forms the smallest ethnic group (1.1%) in Ghana. For religion, 71.2 percent of the population profess the Christian faith, followed by Islam (17.6%). Only a small proportion of the population either adhere to traditional religion (5.2%) or are not affiliated to any religion (5.3%).

Literacy in Ghana is quite high, with majority (74.1%) of the population 11 years and older being literate. A large proportion (67.1%) of the population can read and write in English. About one-fifth (20.1%) can read and write in the English language only while 53.7 percent of the population can read and write in at least one Ghanaian language (Ghana Statistical Service, 2012).

4.3 General Characteristics of Ghana

The country is characterized by fairly low relief with few areas of moderate elevation in the north and east. The land is generally 600 meters above sea level (ASL). Physiographic regions include the coastal plains, the forest dissected plateau, and high hill tops which are important ecological subsystems in a generally undulating terrain. At the southern and northern margins of the Volta Basin, there are two prominent areas of highland – the Kwahu Plateau, and the Gambaga Escarpment. On the eastern margins of the Volta Basin is a relatively narrow zone of

high mountains running in a south-west to north-east direction with the Akwapim, Buem, Togo Ranges registering the highest point (Mt. Afadjato) in the country.

Average rainfall over the country is about 1,260 mm/year but ranges from 890 mm/year in the coastal zone near Accra to 2,030 mm/year in the southwestern rainforests. The rainfall is bi-modal in the southwestern forest zone, giving a major and a minor growing season; elsewhere, a uni-modal distribution gives a single growing season from May to October. Except for the southwestern zone, the reliability of the rainfall, particularly after crop germination, is a major factor affecting crop growth and agriculture in general. The 2024 experience of the long dry spell is a typical example of challenges farmers face when crops depend on rainfall solely.

Ghana is drained by three (3) main river systems comprising the Volta, South-Western and the Coastal River Systems. The Volta River system in Ghana occupies nearly two thirds (70%) of the land area of Ghana, followed by the southwestern (22%) and the minor coastal (8%). Global water resources are estimated at 53.2 km^3 per year, consisting of 30.3 km^3/year of internally produced water resource, and 22.9 km^3/year of runoff from other countries which share the Volta basin.

Major sources of water in the Volta River system and riparian countries are natural rainfall, rivers, streams, lakes, groundwater and artificial impounded water (dams, dugouts and reservoirs). The estimation of direct recharge to the system is based on the assumption that recharge occurs when actual evapotranspiration and direct run-off are balanced by precipitation. This occurs when the soil is saturated to the field capacity, which is likely to occur when precipitation exceeds evapotranspiration. Analyses of rainfall data from various stations within the Volta River system indicate that the months in which precipitation exceeds the evapotranspiration are usually June, July, August, and September. The annual recharge for the Volta River system ranges from 13.4% to 16.2% of the mean annual precipitation. On average, the mean annual recharge of the Volta River system is about 14.8 % of the mean annual precipitation.

4.4 Aquifers found in Ghana

The rocks that underlie 99% of Ghana (the basement complex and the Voltaian formation) are essentially impermeable and have little or no primary porosity. Therefore, groundwater occurrence in Ghana is associated with the development of secondary porosity as a result of jointing, shearing, fracturing and weathering. This has given rise to two main types of aquifers: the weathered zone aquifers and the fractured zone aquifers. The weathered zone aquifers usually occur at the base of the thick weathered layer. The weathered layers vary, from 0m (outcrops) to about 100m. The weathered layer is thickest in the wet forested south-western part of the country where it reaches an average thickness of 60m and is thinnest in the semi- arid zone in the extreme northeast where the mean thickness is 10m. The fractured zone aquifers are normally discontinuous and limited in area. Due to the sandy clay nature of the weathered overburden, the groundwater occurs mostly under semi-confined or leaky conditions. The yield of these aquifers rarely exceeds 6 m^3/h (Ministry of Works and Housing, 1998).

Three aquifers occur in the remaining 1% of Ghana, mainly in the extreme southeastern and western part (with cenozoic and mesozoic sediments formation). The first aquifer is unconfined and occurs in the recent sand very close to the coast. It is between 2m and 4m deep and contains fresh meteoric water. The intermediate aquifer is either semi-confined or confined and occurs mainly in the red continental deposits of sandy clays and gravels. The depth of this aquifer varies from 6m to 120m, and it contains mostly saline water. The third aquifer is the limestone aquifer. It varies in depth between 120m and 300m. The groundwater in this aquifer, which occurs under artesian condition, is fresh. The average yield of the limestone aquifer is about 180m^3/h (WRC, 2021).

4.4.1 Aquifer Recharge

Little information is available on groundwater recharge in Ghana. Recharge to all the aquifer systems in Ghana is mainly by direct infiltration of precipitation through fracture and fault zones along the highland fronts and also through the sandy portions of the weathered zone. Some amount of recharge also occurs through seepage from ephemeral stream channels during the rainy seasons. Some indirect recharge mainly occurs in the lower rainfall, low relief and low permeability areas. This happens when runoff from watershed outside the areas or a particular storm event is of sufficient magnitude to cause runoff. The drainage courses or stream which act as conduit for the overland flows are generally weak fissured zones which allow a greater part of the runoff to infiltrate through their beds to the groundwater table.

Data on water level fluctuation are scarce but support the contention of high recharge in some areas; observations carried out in the Upper Regions between 1976 and 1979 show oscillation of 0.3 to 5.4 m between the dry and wet seasons with the peaks normally in September/October. Wells monitored by the Water Resources Research Institute between 1980 and 1989 show generally irregular movements of groundwater levels and may have been affected by pumping either of the monitoring well itself or other wells in the vicinity. Nevertheless, there are some indications that the groundwater system is active rather than passive and is affected by significant recharge and discharge on an annual cycle (World Bank Country Report, 1992). Climate change can cause reduction in groundwater recharge between 5 and 22% by the year 2020, while reductions for the year 2050 are projected to be between 30 and 40% by the World Bank's Climate Knowledge Portal.

4.5 Groundwater Water and Groundwater Quality

Ground water is the most important source of potable water in the northern Ghana, although generally insufficient to meet the needs of large communities or irrigation agriculture. Water supply thus, becomes one of the key demands of the project areas. In all the communities visited, water supply was one of the major concerns raised by the people (Acheampong, 2001).

Previous studies (Nathan Consortium studies, 1970; Amuzu, 1978; Andah, 1993; Kortatsi, 1994; Ministry of Works and Housing, 1998; Darko *et al*, 2003) revealed that the quality of groundwater in Ghana is generally good for multi-purpose use except for the presence of low pH (3.5-6.0) waters, high level of iron, manganese and fluoride in certain localities as well as high mineralization with TDS in the range 2000-14,584 mg/l in some coastal aquifers particularly in the Accra plains. In Tamale and Atiave, fluoride concentration levels could be as high as 5.0 mg/l and 20.0 mg/l respectively. About 30% of all boreholes in Ghana have iron problems (Ministry of Works and Housing, 1998). High iron concentration in the range 1-64 mg/l have been observed in boreholes in all geological formations. This iron originates partly from the attack of low pH waters on corrosive pump parts and partly from the aquifers (Ministry of Works and Housing, 1998). The percentage of iron derived from the aquifers is however unknown. Table 4.2 gives the mean values of chemical analyses of many water samples in the various geologic formations in Ghana.

The waters in many hand-dug wells look turbid and polluted as they contain high levels of nitrate in the range of 30-60 mg/l and abundant total and faecal coliform (Kortatsi, 1994). This is probably due to improper construction and inadequate protection of wells sites from surface runoff and animal droppings.

4.6 Borehole Yields

Yields from boreholes are highly variable because of the lithological varieties and structural complexities of the rocks. In 1994, the Water Resources Research Institute analysed borehole yields for the various geologic formations in the country. The least explored geologic unit is the Voltaian system (underlying also the Volta basin). Table 3.1 gives a summary of borehole yields for the various hydrologic units in the country.

Table 3. 1 Summary of Borehole Yields of Hydrologic Provinces and Sub Provinces

Hydrogeologic province and sub Province	**Borehole-completion success rate (%)**	**Range of yield (m^3/h)**	**Average Yield (m^3/h)**
Basement Complex			
Lower Birimian System	75	0.41 - 29.8	12.7
Upper Birimian System	76.5	0.45 - 23.6	7.4
Dahomeyan System	36	1 – 3	2.7
Tarkwaian System	83	1 - 23.2	8.7
Togo Series	87.9	0.72 - 24.3	9.2
Buem Formation	87.9	0.72 - 24.3	9.2
Voltaian System			
Lower Voltaian	55	1 - 9	8.5
Middle Voltaian (Obusum and Oti beds)	56	0.41 - 9	6.2
Upper Voltaian	56	1 - 9	8.5
Cenozoic, Mesozoic, and Palozoic Sedimentary Strata (Coastal Provinces)			
Coastal Block-Fault Province	36	1 - 5	3.9
Coastal-Plain Province	78	4.5 - 54	15.6
Alluvial Province	67	1 - 15	11.7

Source: Dapaah-Siakwan and Gyau-Boakye (2000)

4.7 Surface Water Resources

The White Volta sub-basin covers about 49210 km^2 in Ghana, representing 46% of its total catchment area of 10741.67 km^2 distributed in Ghana, Burkina and Togo. Its main tributaries are Morago and Tamne. The Morago has a total area of 1608 km^2 with an area of 596km^2 in Ghana and 912km^2 in Togo. The Tamne lies entirely in Ghana with an area of 855 km^2. The White Volta covers mainly the north-central Ghana and some parts of the Upper and Northern Regions. It is located within the Interior Savanna Ecological Zone and is underlain by the Voltaian and granite geologic formations. Annual rainfall in the sub-basin ranges between 1000 in the north and 1200 mm in the south; pan evaporation is about 2550 mm per year and runoff from within the basin averages about 96.5 mm per year. The average annual runoff from the White Volta is about 272 m^3/s and the mean monthly runoff from within the basin varies from a maximum annual flow of 1216 m^3/s to a minimum of about 0.11 m^3/s. Potential storage sites have been identified within the basin totaling nearly 8180 10^6 m^3 which could regulate the basin yield at a minimum flow of about 209 m^3/s. It contributes about 20% of the annual total flows to the Volta Lake. Specific suspended sediment yield in this basin is between 8.5 and 14.0 tonnes/yr/km^2. Current

surface water uses in the basin are estimated at about 0.11m^3/s for domestic water supply and about 2m^3/s at numerous small irrigation projects.

The Northern Savanna Zone is mainly drained by the White Volta and its tributaries Morago, Red Volta, Atankwindi and Asibelika in the Upper East Region, Kulpawn with its tributary, Sisili in the Upper West Region and the Black Volta, Nasia and Oti in the Northern Region. All the principal tributaries of the Volta are perennial. In the dry season the volume of water in the rivers of the two upper regions reduce considerably, breaking into pools or drying up at the peak of the dry period. The Volta with its tributaries is an important source of surface water in the Northern Savanna Zone.

4.8 Climate

The country has a warm equatorial climate. Mean annual temperatures range between 24OC and 36OC. Relative humidity is high at the coastal areas decreasing inland. The dry harmattan conditions occur from November to January throughout the country, but severer in the north. Average rainfall over the country is about 1,260 mm/year but ranges from 890 mm/year in the coastal zone near Accra to 2,030 mm/year in the southwestern rainforests. The rainfall is bi-modal in the southwestern forest zone, giving a major and a minor growing season; elsewhere, a uni-modal distribution gives a single growing season from May to October. Except for the southwestern zone, the reliability of the rainfall, particularly after crop germination, is a major factor affecting crop growth and agriculture in general. Rainfall decreases from south to north and eastwards, reaching an average of 1,000 mm in the extreme northeast and in the southeast coastal areas. Rainfall in the wettest areas of the forest zone reaches an average of 2,000 mm. The rainfall pattern in the savanna areas is uni-modal while in the forest and forest-savanna transitional zones, a bi-modal pattern occurs.

Figure 3.1 presents information on shorter term changes in regional rainfall volumes between 2023 and 2024 in Ghana. Focus is on months June to August in each year. Except for the Ashanti region, where average rainfall increased by about 8% between 2023 and 2024, other regions experienced declines in rainfall over time[4]. The greatest declines in rainfall were experienced in the North East and Bono East regions, experiencing 67% and 64% declines, respectively. Still within the northern regions, the Savannah and Upper East regions experienced the smallest declines in rainfall volumes between 2023 and 2024, with 6% and 7% declines, respectively. In southern regions, the Central region shows the smallest decline in rainfall between the years (9%), while Greater Accra, Volta, Western and Western North regions all show percentage declines above 36%.

[4] The Ashanti region received high daily amounts of rainfall in June, well above corresponding volumes in 2023.

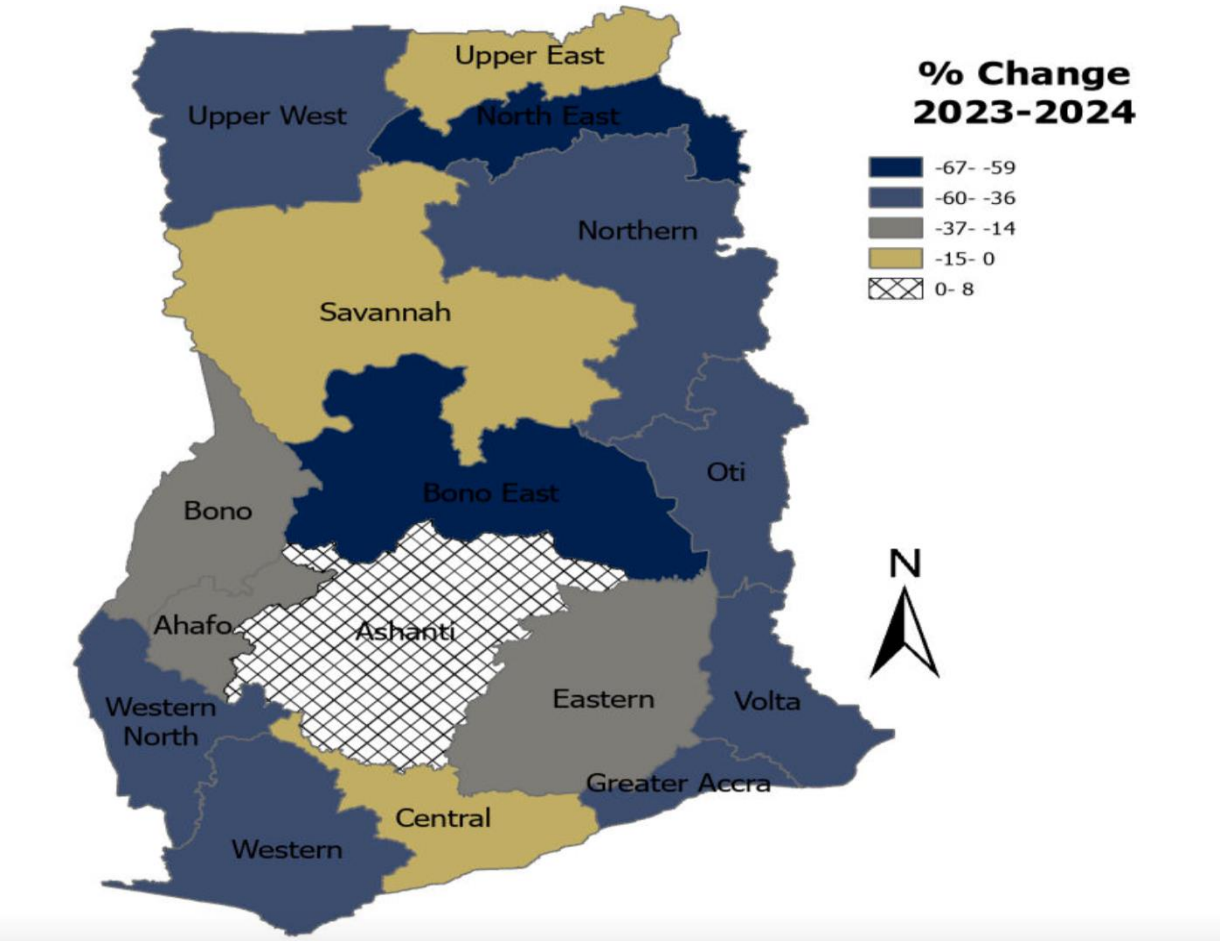

Figure 3. 1 Percent change in total rainfall (mm), by region (June- August), 2023- 2024 (source: Nkechi S. Owoo, 2024)

4.8.1 Climate Change and Agriculture

According to the Climate and Health Vulnerability Assessment Report for Ghana, 2024, climate change in Ghana is causing extreme weather events like floods and droughts. It is estimated that about 2 million Ghanaians are vulnerable to food insecurity and that should any natural disaster occur food availability will be greatly affected, particularly in the Northern region and the rural areas of the country.

Climate change, however, exerts multiple stresses on biophysical as well as social environments that underpin agricultural production, thus thwarting the efforts of farmers and causing a threat to food and livelihood security. Agriculture is not only a victim but also a cause of climate change. It releases and absorbs greenhouse gases but the balance shows how agriculture is contributing to mitigate or increase climate change. Agriculture's CO2 release and uptake are about balanced.

Agriculture contributes to global climate change by releasing carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), the three gases presently causing the most greenhouse warming. Agriculture as a cause of climate change includes and starts with land clearance in new areas. Other causes in the agricultural development include but not limited to land preparation- land clearing and burning, deforestation, changes in land use, energy use and agricultural mechanization processes, natural wetlands use for rice and other production systems, agro-chemical use like fertilization, pesticide and herbicide use, and water use.

4.9 Biological Environment Ecology

There are six broad ecological divisions in Ghana that are rich and varied. The Northern Development Authority (NDA) area has savanna ecology, which extends into the neighbouring countries of Burkina Faso and Togo. It is classified into the Guinea savanna and the Sudan savanna ecological zones.

4.9.1 Flora

The Guinea savanna covers more than 90% of the land surface area of the Northern Savanna Zone but not restricted to it (Figure 4.6). It stretches from the upper regions down south to the forest fringes. The zone includes the grassland of the north and the derived savanna on the fringes of the forests.

The interior savanna contains 1,519 vascular species known to be indigenous or naturalised to the savanna zones of Ghana. Six species including *Ceropergia gemmifera, Commiphora dalzielii, Ptleopsis habeensis* and *Eugenia coronta* are rare in Ghana and internationally. The Guinea Savanna consists generally of fire tolerant, deciduous, broad-leaved trees interspersed in a ground flora of mainly grass, sometimes more than 1.5m high. The more important grasses of grazing value include *Andropogon gayanus* and in densely populated areas, *Diectomis fastigiata, Pennisetum pedicellatum* and *Loudetia togoensis* are common. Other species that occur are *Hetropogon contortus, Schoenfeida gracilis and Aristidaa hordeacea.* The common trees include *Vitellaria paradoxa* (shea), *Parkia biglobosa* (dawadawa), *Piliostigma thonningli, Combretum glutinosum, Anogeissus sp., Detariums p., Afzelia sp., Prosopiss p., Pterocarpuss p., Butyrospermums p., Antiaris sp., Vitex sp., Piliosstigmas p., Lonchocarpuss p.* and *Acacias sp.* Table 4.5 provides the IUCN statuses of the flora identified above.

The Sudan savanna occurs mainly in the Bawku East, Bawku West and Bolgatanga districts at the extreme northeastern corner of the Northern Savanna Zone. Its total coverage is less than 10% of the zone. The vegetation is made up generally of open savanna with short grass interspersed with relatively short low branching deciduous, broad and thin-leave trees. The common trees include species of *Adansonia, Butyrospermum, Acacia* and *Parkia.* The vegetation in most of the project area is characterised by a mosaic of forest, savanna, marshes and grassland. The ecology is for the most part severely altered. This is a reflection of prolonged unregulated grazing, burning, and intensive cultivation.

There are 72 forest reserves in the northern savanna made up of 23, 33 and 16 in the Northern, Upper East and Upper West respectively. They range in size from 0.4km^2 to 1,116 km^2. However, many of these areas are under pressure from subsistence farmers, livestock herders and others who engage in illegal activities in the reserves (Acheampong, 2001). Table 3.2 provides the IUCN statuses of the fauna afore mentioned.

4.9.2 Fauna

Many of the large wildlife species, which are common to tropical Africa, are also found in Ghana. They live mostly in the savanna eco-system and include *Panthera leo* (lions), *Panthera pardus* (leopards), *Loxodonta aficana* (elephants), *Syncerus caffer* (buffalo), *Neotrigus pygmaeus* (royal antelope) and *Colobus* and *Cercopithecus sp* (monkeys), *Hippopotamus amphibius* and *Crocodilus sp.* Snakes include pythons and poisonous ones such as *Naja nelanoleuca* (cobra), *Bitis gabonica* (gaboon viper), Lizards, e.g. *Veranus niloticus,* often of striking colours are common, as are large snails, spiders and scorpions which are found in large numbers. The insect fauna is also very rich. The bird species include Francolinus sp (bush fowl) *Falconidae sp* (falcons, hawks, and eagles) Psittacus *erithacus* (grey parrot), *Neophron sp.* (vultures), *Guttera edouardi* (guinea fowl) and many more. Savanna fauna comprises at least 93 mammal species, about half of which can be large ones,

over 350 bird species, 9 amphibians and 33 reptiles. About 13% of the 860 recorded butterfly species in Ghana are associated with the savanna. The Wildlife Conservation Regulations of 1971 (LI. 685) has schedules which contain lists of wild animals found in Ghana. Fifty-five of these are completely protected (Acheampong, 2001)

4.9.3 Rare or Endangered Species

Populations of many wildlife species found in the savanna have dwindled due human induced interventions, mainly through over hunting, inappropriate agricultural practices and expansion of agricultural land, road construction and bush burning. The demand for wild animal meat (popularly called bushmeat in Ghana) is ever increasing, resulting in widespread hunting. As human populations in the northern parts of the country increases, exerting enormous pressure on the finite good "land" and creating land hunger among mostly the rural people, intact savanna woodlands and secondary groves which provide wild animals refuge and source of food become fragmented and unable to hold large populations of animals (Acheampong, 2001).

Table 3. 2 IUCN Status es of Typical Flora and Fauna Species

Scientific Name	IUCN Status	Scientific Name	IUCN Status
Flora		**Fauna**	
Ceropegia gemmifera	Critically Endangered	*Panthera leo*	Vulnerable
Commiphora dalzielii	Endangered	*Panthera pardus*	Least Concern
Pteleopsis habeensis	Endangered	*Loxodonta africana*	Endangered
Eugenia coronta	Critically Endangered	*Syncerus caffer*	Not Threatened
Andropogon gayanus	Least Concern	*Neotragus pygmaeus*	Least Concern
Diectomis fastigiate	Endangered	*Colobus*	Vulnerable
Pennisetum Pedicellatum	Least Concern	*Cercopithecus sp*	Vulnerable
Loudetia togoensis	Data Deficient	*Hippopotamus amphibius*	Vulnerable
Heteropogon contortus	Least Concern	*Crocodilus sp*	Least Concern
Schoenefelda gracilis	Data Deficient	*Naja nelanoleuca*	Least Concern
Aristidaa hordeacea	Critically Endangered	*Bitis gabonica*	Vulnerable
Vitellaria paradoxa	Vulnerable	*Veranus niloticus*	Least Concern
Parkia biglobosa	Least Concern	*Francolinus sp*	Least Concern
Piliostigma thonningii	Data Deficient	*Falconidae sp*	Vulnerable
Combretum glutinosum	Least Concern	*Psittacus erithacus*	Least Concern
Anogeissus sp	Least Concern / Endangered	*Neophron sp.*	Endangered
Detarium sp.	Least Concern	*Guttera edouardi*	Least Concern
Afzelia Africana	Vulnerable		
Prosopis sp	Data Deficient		
Pterocarpus sp	Least Concern		
Butyrospermum sp	Vulnerable		
Antiaris toxicaria	Least Concern		
Vitex sp	Critically Endangered		
Lonchocarpus sp	Least Concern		
Acacia sp.	Least Concern		

4.10 Gender and Vulnerable Groups Issues

4.10.1 Role of Women in Ghana's Economy

In Ghana, although women's roles and participation in economic activity have been defined and shaped along biological and cultural lines, women have made significant strides in all aspects of the Ghanaian economy especially in the agricultural and service sectors. Presently, more Ghanaian women are now getting out of their home jobs into paid jobs and are required to combine their work at home as homemakers and their jobs outside the home.

Although females make up about 51% of Ghana's population as at 2010, illiteracy is more prevalent among women than men. The 7th edition of the Ghana Living Standards Survey (GLSS 7) for instance found out that twice as many females as males have never been to school. This among other factors implies that in Ghana more males have access to education than women. This situation explains why the concentration of women in skill and knowledge-based industries is low, as against the high concentration of women in the informal private sector employment and informal self-employment.

According to GLSS7, the gender characteristics of the unemployed indicate that the unemployment rate among women is lower than among males. In terms of women's participation in the labour force and economic activity, the survey finds that women although they make up almost half of the economically active population are mostly in the lower tiers of economic activity especially the private informal sector where women are predominantly entrepreneurs of small and medium scale businesses. Women are found to be mainly employed in agriculture and allied fields: sales work and to a lesser extent production, transport, professional and technical fields. Women in recent times have increasingly become the backbone of their families as breadwinners.

A study observed that there is decomposition of poverty by the gender of the household head. Female headed households continue to have lower poverty rates (19.1% in 2013) than male-headed households (25.9%). Extreme poverty presents a similar pattern. The literature has attributed several possible reasons for these differences in poverty rates by gender of household head, but it depends substantially on country context and should be noted that such households are far from homogenous. For instance, in many cases, female-headed households may be less poor if the female is married to a migrant who sends remittances back home (The Ghana Poverty and Inequality Report – 2016).

Existing programs to enhance women's participation in economic activities have covered financial assistance in the form of micro credit as well as skills training and retraining through workshops, seminars, etc. However, due to various operational constraints, financial assistance from micro-financial institutions has been poor and woefully inadequate.

4.9.2 Women in Agriculture

Within the agriculture sector women are predominant in all the sub-sectors namely farming, processing and distribution. As farm owners, farm partners and farm labourers, women are estimated to account for 70% to 80% of food consumed in Ghana. The predominant role of women in agriculture has enabled most women farmers to become increasingly responsible for the educational and other material needs of their wards, especially for female headed households.

Women face a myriad of problems in carrying out agricultural activities and these include the following:

- access to and control over land due to traditional/ cultural factors

- access to credit due to lack of collateral, inadequate savings needed for equity payment required for loans, cumbersome bureaucratic procedures for accessing formal credit facilities
- access to training due to ignorance on the awareness of training programs and low educational qualification
- access to hired labour on their farms due to rural-urban migration
- access to other inputs: fertilizer, extension services, information, technology, etc.
- time constraints

These constraints listed above already pose great challenges to their food system resilience. In this emergency, if women are not intentionally targeted to benefit from the input supply intervention, the livelihood of achieving inclusion in this CERC intervention will be minimal.

4.0 STAKEHOLDER ENGAGEMENT

4.1 Purpose of Stakeholder Involvement

Stakeholder involvement is a key aspect of the Environmental and Social (E&S) assessment process. Its significance is accordingly captured in Ghana's Environmental Laws EPA Act 490 and LI 1652, the Local Government Act of 2016 which assigns mandates to MMDAs for citizen engagement in matters that concern local development and planning, and the World Bank's E&S requirements, ESS 10. In line with the E&S assessment process' objective of preventing or reducing adverse effects of the implementation of CERC activities on the environment and people, key stakeholders who are associated with the project are in the sole position to express concern or offer advice which can guide successful project execution.

The involvement of persons and institutions with regard to the project promotes transparency and affords all parties the opportunity to scrutinise the project and pick up potential red flags that might hinder or interfere with project implementation. Host communities hold "social capital" which is the goodwill and support of the community for the project. Promoting transparency of the project through engagement builds trust in the communities and makes it more likely to get their support for the project.

The involvement of stakeholders helps to identify the diverse needs, interests or potential conflicts that could arise because of the project and offers an opportunity to minimise potential misinformation and unnecessary agitation. It promotes a feeling or sense of ownership or ease of identification with the project. It helps to establish good rapport and cooperation with the project proponent. A major activity in the assessment process is therefore the identification and engagement with the relevant stakeholders – institutional, community, civil society, etc.

4.2 Objectives of Stakeholder Involvement

The objectives of stakeholder involvement were:
To provide information on the project to stakeholders and receive their inputs to inform its implementation;
To elicit information that would help identify the potential and actual environmental and social issues in the project area;

- To derive baseline data that may be anecdotal, but which could complement data obtained from published documents;
- To pick up cues that would help develop key aspects of the environmental and social management plans such as Grievance Mechanism, effectiveness and compliance monitoring, etc.;
- To provide information to project stakeholders on the environmental and social impact assessment process and seek their participation and input; and
- To establish cooperation and encourage participation of the stakeholders in the impact assessment and mitigation process.

4.3 Key Stakeholders Engaged

Stakeholder identification and mappings were carried out to establish which organizations, groups and individuals have the potential to be directly or indirectly affected both positively and negatively by the CERC activities and the degree to which they can influence and have an impact on the project. Table 4.1 gives a list of stakeholders engaged.

Table 4. 1 Stakeholders Engaged

Stakeholder category	Institution
Project Proponent/Partners	Ministry of Food and Agriculture
Sector Agencies	District Departments of Agriculture
Environmental Protection	Environmental Protection Agency (EPA)
Local Government Authorities	MMDAs
Emergencies affected persons	Farmers

4.4 Outcome of Stakeholder Consultations

The Table 4.2 below shows stakeholder consultation with affected farmers and other stakeholders in the field and the consultation outcomes.

Table 4. 2: Stakeholder Consultation Outcomes

No	Agency /Institution/ Participant	Key Issues Discussed
1.	Ministry of Food and Agriculture	• The impact of drought is severe and will lead to food insecurity • 62% of the country's cereals are produced from these effected areas • There is a need to support farmers recover from these shocks
2.	District Department of Agriculture Offices in Northern Region (Savelugu, Tolon, Mion etc.)	• Farmers are in a bad situation considering the impact of climate risk on their production • Farmers should be supported to recultivate their farms in the coming seasons
3.	Environmental Protection Agency (EPA)	• Climate risk is increasing in many nations including Ghana • There is a need to train farms on more climate smart production technologies and practices • There is a need to develop a water management system to ensure farmers have significant water for all year production
4.	Selected Farmers from Northern Region	• Crops are severely damaged • The likelihood of recovering any significant crop produce even the rains starts falling is minimal • Government must invest in irrigation facilities to help tackle drought in future

Figure 4. 1: State of Farms after drought in Northern Ghana

4.5 ESMF Disclosure

The EPA and World Bank policies require that environmental reports/ESIA documents for projects are made available to project affected groups, local NGOs and CSOs, and the public at large. Following clearance from the World Bank, the Government of Ghana would disclose the framework through print and electronic media advertisements and copies made available in selected public places. The advertisement would provide:

- a brief description of the CERC activities
- a list of venues where the ESMF report is on display and available for viewing;
- duration of the display period; and
- contact information for comments

The CERC - ESMF would also be disclosed electronically on the MOFA, FSRP and World Bank Websites.

5 ASSESMENT OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1 Environmental and Social Risk Classification (ESRC)

The overall E&S risk classification for the FSRP2 is substantial however, this CERC is classified as moderate. The risk ratings take into consideration the E&S risk and impacts associated with the proposed activities under the project and the institutional capability of the government implementing agency to manage them.

5.2 Potential Environmental and Social Risks and Impacts of CERC Activities

The CERC activities would be implemented across the entire country and will involve a set of activities that generate potential E&S risks and impacts. Based on experience with similar activities under FSRP2 project, the potential negative impacts and risks envisaged are not expected to be major. CERC financed activities are limited to the provision of inputs comprising fertilizers and seeds. Likewise, land acquisition resulting in involuntary resettlement or restrictions on access to resources and livelihoods is not anticipated because of the limited scope of activities to be supported under the CERC.

The project (FSRP) has prepared and disclosed an ESMF (Feb 2022), RPF (Feb 2022) LMP (Feb 2022), renegotiated ESCP (July 2024) and SEP (May 2023). The CERC will rely as much as possible on these Environmental and Social Risk Management (ESRM) instruments to address any potential impacts that might arise during CERC intervention implementation. This CERC-ESMF is an addendum to the ESMF of the parent FSRP2 project.

5.3 Methodology for Assessing and Ranking Impacts

The likelihood of occurrence of adverse environmental and social risks and impacts associated with the project as well as the level of significance were evaluated, based on a modified methodology for assessing and ranking impacts adapted from the ISO 14001 Environmental Systems Handbook (Whitelaw, 2004). The ranking system used eight assessing criteria, qualitatively scoring ‘low’, ‘medium’ or ‘high’ scores for ranking the likelihood of occurrence and significance of impacts. The eight criteria used are listed and further outlined in the box below:

1. *Knowledge about similar/past projects*
2. *Level of risk of impact*
3. *Actual or potential nuisance*
4. *Spatial scale of impacts (spatial extent)*
5. *Timescale of impacts (temporal extent)*
6. *Inducing future incompatible activities*
7. *Legislative requirements and standards*
8. *Information availability*

5.3.1 Knowledge of Similar/Past Projects or Project Environment

The knowledge of similar projects or various aspects of a project or in relation to the project environment. Aspects and related activities that have had environmental and social problems in the past would have a higher score, since they would have a higher likelihood of occurrence as compared to incident-free record of other activities. Likewise, aspects that generated complaints in the past would be deemed significant.

5.3.2 Level of Risk of Impact / Likelihood of Impact Occurrence

This looked at the probability of impact (or risk) occurrence (i.e. likelihood), and the likely consequences should an incident occur. It also assessed concerns such as whether there could be associated risks before and even after mitigation measures are taken (residual risks).

5.3.3 Actual or Potential Nuisance

Actual or potential damage or nuisance that the impact could cause surrounding areas or recipients, or any potential nuisance resulting from the proposed activities to the public or other sensitive receptors within the area of influence. Also considered impacts that are direct or indirect, reversible or irreversible.

5.3.4 Spatial Scale of Impacts

The spatial extent of impacts considered were whether local only (spatially limited), or community-wide, or district-wide effects or at the national scale.

5.3.5 Time Scale of Impacts

The duration over which impacts would occur or would be experienced (duration of exposure). Impacts could be intermittent or occasional, or frequent, persistent, but of less acute or long-term consequence (less serious) than effects with serious and/or long-term consequences.

5.3.6 Future Induced Activities

The likelihood of induced activities or adverse situations that may arise (could be cumulative) in the future due to the presence of the project, and what the nature or scale of these potential activities or situations could be (social- or environmental- or health-wise). Also included is any likelihood of future incompatible activities or situations in the area of influence that may affect the objective of the project.

5.3.7 Legislative Requirements and Standards

The available legislation, policy, standards/discharge limits or guidelines in place to facilitate evaluation of significance and management of impacts; where available the relevant aspects or impacts were considered less significant, or otherwise considered significant.

5.3.8 Information Availability

For lack of information as baseline for a satisfactory assessment, the relevant aspect or impact was considered significant. In other words, knowledge gaps in the assessment meant it would be based on inadequate information/data, potentially introducing a high degree of uncertainty, hence an evaluation of high significance.

5.4 Potential Adverse Impacts and Risks

The potential adverse impacts and risks which could be associated with the implementation of CERC activities are discussed below.

5.4.1 Risk of Use of Substandard Agricultural Inputs

The implementation of the CERC activities for input supply if not properly implemented could present a risk of sub-standard seeds and fertilizers leading to the failure of the intervention.

Some input dealers due to the porous nature of Ghana's borders smuggle sub-standard agricultural inputs into the country. These inputs may be less expensive compared to original products that are legally registered and imported/manufactured in Ghana. If due procurement procedures are not followed, there is a likelihood of purchasing sub-standard inputs. These sub-standard products could have Material Safety and Data Sheet (MSDS) which are incomprehensive to farmers leading to wrong application of the products. The use of such sub-standard inputs could therefore lead to crop failure and effect the health and safety of the supported farmers.

Also, storage of these sub-standard inputs, for instance, fertilizers in bedrooms could lead to some health problems. The health impacts can include a reduced lung function, irritation to the throat and eyes, and increased coughing and phlegm expulsion. The empty containers/bags of chemicals could be used to draw water and drink from it. The risk of use of sub-standard agricultural inputs has a medium likelihood of occurrence, however, its effects could be felt nationally, hence ranked high in significance.

5.4.2 Climate Change Impacts

The availability of agricultural inputs such as seeds, fertilizers, pesticides, and technology support to the drought affected persons will attract the beneficiary to try to expand their farms. Besides potential conversion of areas covered by forests and woodland into agricultural fields, and thus reducing the carbon sequestration function of these areas, it could promote agricultural expansion or people starting new investments in agriculture such as mechanisation. Fossil fuel use also contribute to greenhouse gases leading to climate change.

Fertilizers produce greenhouse gases after farmers apply them to their fields. Research have shown that crops only take up, on average, about half of the nitrogen they get from fertilizers. Much of the applied fertilizer runs off into waterways, or gets broken down by microbes in the soil, releasing the potent greenhouse gas nitrous oxide into the atmosphere.

The climate change impacts of the CERC activities coupled with the current climatic condition of these effected areas makes the likelihood of occurrence of climate change high, however, climate tolerant seeds and climate change technologies will be promoted among these supported farmers to reduce their blueprint, hence the significant of this impact is ranked moderate.

5.4.3 Biodiversity Impact

The availability of and access to accurate and timely information related to weather conditions, disasters, longer-term climate trends, land use, environment, hydrology, conflict, agriculture production and market price data, etc. could increase the conversion of the natural habitat for farming activities; an action that drives out wildlife as their habitats become fragmented and eventually are lost. The supply of input especially for the largescale commercial farmers could promote the clearing and development of agriculture land to increase food production to compensate for the effects of the drought experienced. The likelihood of occurrence of the impact is low however, its effect will be high if it occurs, hence the significance is ranked moderate.

5.4.4 Waste Generation and Handling Impact

The movement and distribution of fertilizers could result in the broken bags and containers resulting in waste generation. These broken bags and empty containers if not well kept could be dump on surrounding land leading to reduced aesthetics of the sites. These wastes could also be washed into waterbodies with all their residue leading to water quality issues and its attended effects.

The use of agro-chemicals and fertilizers by farmers would generate empty chemical containers and sacks, which could be disposed of indiscriminately at farms. This containers and sacks contain residue of the inputs which could find their ways into water bodies contaminating these water resources making them uninhabitable for aquatic life. Chemical containers could also be used for various purposes including being used as water and drinking containers. This would be dangerous as the residue of chemical could adhere to the containers and get into the blood stream of users with its consequent health challenges. The containers could also be carried in runoff into other areas and effect the aesthetics of such communities. This impact has a medium likelihood of occurrence, and its effect is regional. The significance is therefore ranked medium.

The distribution of fertilizers and seeds will bring together several farmers at the distribution sites. Activities of farmers and staff at the distribution centres will produce domestic waste which could affect the aesthetics of the sites and serve as breeding grounds for mosquitoes. The likelihood of occurrence is high, the effect is moderate, hence the significance is ranked moderate.

5.4.5 Labour and Gender Issues

Of all children in Ghana aged 5 to17 years, about 28% are involved in child labour and 21% are engaged in hazardous forms of labour (MICS, 2017/18). Child labour is predominantly a rural phenomenon) (MICS, 2017/18). For poorer households, child labour is a negative coping mechanism and most of the children involved in child labour are involved in agriculture and fishing industries. In all regions, most working children are unpaid family workers between the ages of 5 and 7 years. Under the Ghana Children Act 1998, minimum age for admission of children into employment is fifteen (15). However, children may be employed at the age of 13 to do light work. The minimum age for engagement of persons in hazardous work is 18 years.

Farmers that desire to expand their operation and maximize the benefits of CERC input intervention could exploit children from poor households or trafficked from other areas as paid or unpaid labourers to support such purposes as a ploughing and application of fertilizers. Children engaged in child labour could drop out from education, or if they continue education, may not be able to fully benefit from that education. They may also be exposed to hazardous conditions that are dangerous to their development or may even be injured which could lead to long term impacts.

Large commercial farmers who might benefit from the CERC intervention will engage workers. Close interactions between workers and local communities may result in cases where some workers commit sexual abuse or have sexual intercourse with underage community members. The likelihood of this impact is high, but considering the measures put in place to address these issues under FSRP2, the significance is ranked moderate.

5.4.6 Potential Soil Degradation

The extensive cultivation on land, improper cultivation practices like mono-cropping, poor manuring, misuse of fertilizers or excess use of fertilizers, excessive irrigation, and fragility of soil could also result in soil degradation. Due to shortage of land, and economic pressure, some farmers may adopt intensive cropping patterns of commercial crops in place of more balanced cereal-legume rotations. The promotion of maize and rice under this CERC intervention would mean that more lands will be shifted from leguminous plants to these heavy

feeding crops. Intensive cultivation leads to removal of large quantities of nutrients from the soil resulting in loss of soil fertility. This could compel farmers to use more or excess fertilizer inputs to compensate reduced soil productivity with implications on the acidity, alkalinity and salinity of the soil which is unsuitable for crop growth.

Land harrowing may expose the soil to nutrient leaching, especially in places that get flooded in the rainy seasons. In the event of flooding of the area, draining the land could lead to topsoil degradation and subsequent soil fertility loss. The likelihood of occurrence for this impact is medium with moderate effect, hence significance is ranked moderate.

5.4.7 Impact on Water Resources

Land preparation for planting would result in the loosening of the topsoil. Erosion from farmlands may result in the transport of soil sediments in runoff into surface water bodies.

The transportation of the 118,000 MT (2,360, 000 bags) of fertilizers across the length and breadth of the country poses significant risk to water resources in the events of accidents which result in the spilling of fertilizers on the road. This spill fertilizers will be carried in runoff into water bodies leading to eutrophication. Eutrophication could lead to algal blooms, reduced biodiversity, water quality challenges, reduce the aesthetics value of water bodies. fish kill, and even dead zones in the waterbodies.

Furthermore, other agrochemicals application which may not be supplied by the CERC intervention but will be used by farmers, including herbicides, pesticides, and other fertilizers on farms could be washed in runoff into surface water sources with the associated concerns on the water quality of the stream/ river. Also, continuous transportation of nutrient-rich sediments (through fertilizers application) into the stream and river could also result in nutrient enrichment of the stream/river with implication on the water quality and aquatic life. Agrochemicals could leach into the soil and contaminate groundwater upon excessive use. The likelihood of occurrence is high, and effect is high, hence the significance is high.

5.4.8 Health and Safety Risks from CERC Inputs Storage and Use

The inputs which will be procured nationally are expected to be storage in warehouses or temporary holding infrastructures at the regions for onward distribution to the districts for distributions to farmers. Stored under extreme weather condition such as heat, fertilizers could form toxic fumes which are toxic to humans. Fertilizers can also cause expose under hot conditions. Fertilizer dust could cause respiratory tract diseases for persons inhaling them and where individuals have cut and bruises, contact with fertilizers can cause skin irritation. Persons loading and offloading the fertilizers and those working in these warehouses and the distribution centres are therefore at high risk and the likelihood of occurrence is high, hence significance is ranked high.

Agro chemicals such as NPK and Urea will be applied to farms. The quantities of these chemicals (150-200kg per hectare for NPK fertilizer and 75-150kg per hectare for Urea) is a source of concern as their careless use and mishandling could cause a variety of conditions including eye irritation and/ or corneal injury and skin irritation when in contact with the eye and skin without the use of PPEs. Farmers could be chemically poisoned if they accidentally ingest the chemicals. Health risk from agrochemical usage is ranked high considering the long-term duration of agrochemical usage. The likelihood of occurrence is moderate, but effect will be high, hence its significance is ranked moderate.

6.0 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

The assessment of this CERC intervention revealed a few significant potential impacts/risks for which mitigation measures will be required to ensure environmental soundness, social acceptability, health and safety protection and programme sustainability. These measures will serve as basis for mitigating environmental and social risks and impacts association with the implementation of CERC activities. While some of the measures will be in-built in the procurement and distribution processes, others will be implemented during use of the inputs supplied to the affected farmers. These mitigation measures have been defined to address the following:

- Education on approved agricultural inputs;
- Climate change adaptation measures;
- Biodiversity enhancement;
- Waste segregation and disposal measures;
- Labour improvement, gender protection measures and child labour prevention measures;
- Soil restoration measures;
- Water resources protection measures; and
- Health and safety measures;

6.1 Education on Approved Agricultural Inputs

The FSRP2 in collaboration with the MoFA will purchase and use only EPA approved agrochemicals from licensed agrochemical shops. The Plant Protection Regulatory Service Directorate (PPRSD) will be the line directorate of MOFA required to sample all input supply to ensure that no sub-standard Input is supply to the CERC intervention beneficiaries. The process of purchasing, transportation, storage and distribution should be guided by a team from the FRSP ESRM team, PPRSD, Directors and AEAs of the DDAs nationwide and the proposed MOFA team for the implementation of the CERC intervention. The CERC inputs will be climate tolerant themselves, however, the farmers will also be educated to adopt integrated weed and pest management practices for weed and pest control such as the use of certified and disease tolerant seed varieties, use of early maturing seed varieties, proper land preparation, early planting, following recommended planting space between rows and plants, timely/early weeding, suitable water management practices and the use of agrochemicals where necessary. This will minimise the rate of agrochemical use. A comprehensive Integrated Pest Management Plan (IPMP) has been prepared by the FSRP2 as a standalone document will also be used by AEAs to guide farmers and other stakeholder on the management of pest and the safe use of agrochemicals.

All Inputs supplied must be well labels and the accompanying MSDS made easy for reading and comprehension. No fertilizers will be re-bagged under any circumstances.

6.2 Climate Change Adaptation Measures

FSRP2 is set to promote some proven fifteen (15) climate smart technologies to farmers. The introduction of scientific methods of farming through sustained extension services, improved seeds among others will ensure the intensive use of land and reduce shifting cultivation. These technologies adopted by the FSRP2 will be promoted among CERC intervention beneficiaries after the inputs are supplied for cultivation, The effect of these reforms will minimize land erosion, improved fertility and ultimately higher yields and productivity. The expected output per hectare of the selected crops will compare favourably with achievable yields while minimizing the release of GHGs from the beneficiary farmers.

Famers who develop new land because of input supply will be required to replant these trees which will be monitored during the cropping season.

6.3 Biodiversity loss Minimisation Measures

The CERC activities will ensure that unnecessary exposure of and access to sensitive fauna and flora habitats is avoided during land development and production activities. Beneficiary farmers will be encouraged to maintain their existing cultivation land. However, where it is necessary to develop new land for production, farmers will be educated to avoid sensitive habitats or areas with protected species as much as possible. In the event farmers clear new sites with tree species, farmers will be guided to replant these trees at other strategic areas close to their sites to bio-offset the effect of the tree removal on the microclimate. Where new fields are likely to be cultivated, screening will be conducted to inform the appropriateness of the site and where the site is unsuitable because of environmental and social reasons, the project will not support the activities. The screening will also inform the kind of E&S instruments to be prepared for such interventions. Given the emergency nature of the CERC, the project does not anticipate expansion of existing farm lands.

6.4 Waste Segregation and Disposal Measures

In compliance with the objectives and the specific guidelines for environmental sanitation services of the Environmental Sanitation Policy (2010), measures would be put in place to minimise the impact of waste on the environment.

All warehouses and distribution centres should be provided with waste bins to collect all waste generated. The waste was be disposed of at approved dump sites in the districts. Where thirty party companies are engaged to collect this waste, there must be record of their activities and their adherence to the district assembly waste management regulations.

Fertilizer and seed spill clean-up kits will be provided at the warehouses and temporary holding centres to collect and properly dispose any waste generated at these facilities.

Waste bin must be provided to collect domestic waste generated while beneficiaries wait to collect their input which must be disposed of at the end of the day.

6.5 Labour Improvement and Gender Protection Measures

A standalone Labour Management Procedure has been developed under FSRP2 to guide management of risks and issues related to labour under the implementation of the FSRP2. This procedure among others prohibits forced labour, child labour and compulsory overtime; and provides guidance on salaries, wages, allowances, deductions and minimum age for engagement and employment on the project. The commercial farmers who are likely to engage farmers must adhered to the principles enshrined in this LMP as follows:

- Payment of fair, realistic and adequate compensation/remuneration packages to especially local staff in compliance with minimum salary standards in Ghana;
- Promotion of collective bargaining;
- Provision of safe working environment;
- Prohibition of, prevention measures, monitoring and remediation of forced labour or child labour; and
- Prohibition of excessive compulsory overtime duties.

A combination of tools will be employed to ensure effective operation of the principles. These tools will involve the following:
Age verification of workers, code of conduct for commercial farmers, prevention of child labour, records of underage workers, signed parental consent for workers under 18.
As part of the requirement, the employer/contractor will sign to protect the human rights and entitlements of the employees. Copies of each signed contract and signed Code of Conduct will be filed in individually kept folders to be made available for inspection periodically at the construction sites.

Extensive education on human rights protection will be provided to the farmers team during the production kick-off meeting. Training will be provided on the code of conduct, child labour, forced labour and SEA/SH. Cases of all human rights abuses will be filed with the offices of the Human Resource Department of various facilities during operations.

6.6 Soil Restoration Measures

Land clearing would be minimized during development of new production site as much as possible to avoid unnecessary exposure of bare ground to the elements of the weather. Cleared areas would be revegetated as early as possible. As much as possible, construction works would be done in the dry season.

Farmers will be sensitised to adopt minimum tillage during planting seasons to reduce the susceptibility of the soil to erosion and hardpan formation associated with continuous ploughing at the same depth. After harvesting, crop residue comprising process residue (straw, husks, skins, trimmings, among others) and field residue (stalks and stubble/stems, leaves of crops) will be tilled into the soil to improve the soil structure and soil organic matter content. Although the CERC will support maize and rice, farmers will be encouraged to utilise cover crops at erosion-prone areas in sections.

6.7 Water Resources Protection Measures

As part of the promotion of the climate smart technologies, farmers will be educated on minimal and zero tillage to reduce erosion which could lead to runoff of soil into water bodies.

Vehicle transporting fertilizers to regional and district warehouses will be properly procured from companies who have systems to handle such emergencies. All vehicles are expected to comply with the road code of Ghana. Only strong and health vehicles will be engaged to do these distributions to avoid breakdowns and accidents.

Buffer zones areas will be strictly out of bound to CERC beneficiaries, as much as possible, farmers will ensure that fertilizers are deep planted for maize. Farmers will also access weather information before the application of fertilizers to reduce runoff with loads of fertilizers into the water bodies.

6.8 Health and Safety Measures

The inputs procured will be immediately distributed to reduce the hold-on time at the regional and district warehouses and holdings centres.
The following activities will be implemented to reduce the health and safety risk associated with input distribution:

- Provision and use of high visible clothing during the loading and offloading fertilizers into distribution trucks;
- Provide PPEs such as nose mask, gloves and overall clothes for works to reduce direct exposure to fertilizer dust;
- Provision of first aid kits at holding centres and warehouses to provide the first aid in the event of an accidents, etc.
- Stand on the side of big bags to avoid being crushed; and
- Encourage farmers to return empty bags to an approved recycling site in the districts where these sites exist.

7.0 ESMF IMPLEMENTATION PLAN

The successful implementation of the environmental and social risk management will depend on the commitment of MoFA and selected stakeholder including the EPA, GMet, NADMO and other key stakeholders playing their expected roles. This section addresses the following key areas of the CERC-ESMF implementation:

- Institutional roles and responsibility;
- Capacity building;
- Environmental and social monitoring and reporting;
- CERC-ESMF estimated budget.

7.1 Institutional Roles and Responsibility

This CERC-ESMF provides the environmental and social risk management institutional arrangements, whose successful implementation will depend largely on the support of key stakeholder agencies. This will ensure that the CERC intervention is undertaken with due regard for the integrity of the resources to be affected by the project development activities.

MOFA

A team of technical experts (PPSRD, FSRP2 ESRM Unit, Extension etc.) will coordinate the transportation, storage and distribution of the inputs to ensure that the activity is done in an environmentally sustainable and socially acceptable manner in the beneficiary communities.

MOFA will also set up monitoring and experiential learning teams made up of personnel from the Ministry of Food and Agriculture and FSRP M&E units, NADMO, World Food Programme, Ministry of Finance, the World Bank, the Agriculture and Finance Committees of Parliament, Civil Society Organizations, and select media houses. Their role is to ensure that the implementation is carried out effectively, provide to Ghanaians that farmers have received the necessary support and that farming activities have been fully restored.

EPA

The EPA is responsible for ensuring compliance with laid down ESIA procedures in Ghana in accordance with the EPA Act 1994 (Act 490) and its related Environmental Assessment Regulations. The EPA oversees compliance with environmental and social assessment requirements in Ghana and facilitates public participation and disclosure. EPA's roles in the implementation of the CERC ESMF would have captured the list below:

- Review/approve screening guide for sub-projects;
- Categorise subprojects' environmental and social risks and impacts;
- Review and approve terms of reference for the preparation of ESIAs for subprojects
- Review and approve ESIAs for subprojects;
- Issue Environmental Approval (permit) for sub-projects;
- Facilitate E&S risk management training;
- Monitor and enforce environmental compliance; and
- Receive and review Annual Environmental Reports (AER), ESMPs for the renewal of Environmental Permit.

However, under this CERC intervention, EPA oversight will be restricted to implementation of the CERC intervention where the Agency inspect to ensure that the warehouses holding these inputs are in

good standing and the provision of permits to cover the operation of these Warehouses. No detail EIA process is envisaged under these circumstances.

NADMO

The National Disaster Management Organisation (NADMO) mandate includes all activities from preparedness to response and recovery, prevent disasters, create awareness in prone communities and institutions on all hazard/disaster types, train and motivate the communities especially volunteers to initiate actions to prevent and respond to disasters; bring relief to disaster victims, assist to reduce poverty in vulnerable and poor communities through social mobilisation for employment creation and income generation. CERC activities are mostly in response to emergence crisis, NADMO will therefore play a significant role in the implementation of these activities.

GMET

The Ghana Meteorological Agency (GMet) is government body mandated to offer weather and climate services, to analyze scientific research findings and provide guidance on climate change. Most natural disasters such as drought, floods, earthquakes, hurricane, etc are climate related. Climate change resilience is a central theme in FSRP2 implementation and therefore GMet will play a significant role in guiding the Project to plan, prepare, response and recovery from these climate risks.

7.2 Capacity Building

The responsibility for ensuring environmental soundness and social acceptability of the MOFA FSRP2 which primarily lie within the Environmental and Social Risk Management Unit (ESRMU) of the PIU. Competence of key stakeholders to carry out their respective, planning, approval, permitting, monitoring and implementation roles will largely determine the success and sustainability or otherwise of the Project.

The objectives and provisions of this CERC-ESMF therefore cannot be achieved in the absence of relevant competencies on units within MoFA (PPSRD) and other stakeholders responding to the various implementation of environmental and social risk management within as well as the NADMO and GMET. The following sections provide recommendations on capacity building to support the program's environmental and social management objectives.

DDAs - MoFA

FSRP2 has built the capacities of one hundred and twenty (120) the Agricultural Extension Agents (AEAs), 56 District Directors of Agriculture and 56 Schedule officers in 10 out of the 16 regions of Ghana in the following areas:

- Requirements of the World Bank ESF and Ghana Environmental assessment t system
- Labour managements, and
- Completion of agrochemical usage and management logbooks.

The Directors, Schedules and AEAs are expected for facilitate the storage &distribution of input and to assist farmers during routine visits. Since the officers have been trained already, it is expected that they support the process effortless and assist farmers carry out their activities in a sustainable manner. The officers will be guided in the following areas:

- Occupational health and safety;
- Emergency responses;
- Integrated Pest and Disease Management;

- Environmental monitoring; etc

7.3 Sub-project Screening and Approval

This section outlines the screening, review and approval process to facilitate screening of the sub-projects applying relevant guidelines for addressing potential impacts/risk, while meeting the ESMF screening and E&S risk management requirements. The major issue of concern will be the warehouse operations and permit status of these facilities.

The screening process would be undertaken by the MOFA/ FSRP PIU for the intervention. The extent of environmental and social work that might be required for the activities prior to implementation will depend on the outcome of the screening process.

7.3.1 ESIA Procedure to be followed for Sub-projects

The World Bank ESS 1 provides guidance on the environmental assessment procedures for World Bank funded projects. The Ghana EIA procedures (EPA, 1995) have also established a process to screen and evaluate all undertakings, projects and Projects which have the potential to give rise to significant environmental impacts. The two processes are largely similar, and the Ghanaian procedures are therefore given in the following sections. The FSRP2 PIU will ensure that the warehouses are adequately covered by EPA permits by following the registration and permitting process.

The following steps will be followed by MoFA, the implementing ministry, to ensure environmental and social compliance of CERC intervention.

Step 1: Environmental Registration of sub-projects

The Environmental and Social Specialists of the FSRP2 PIU will provide risk management supervision over the CERC intervention. The specialists will be directly responsible for the registration of CERC activity with the EPA as required by law. The Environmental Assessment Registration Forms are available at all EPA offices to register every project/development that may have an impact on the environment.

A sample copy of the EA1 Form is provided (Appendix 1B) and the mitigation measures suggested in this CERC- ESMF as well as the checklist (Appendix 1A) to be used in screening exercises should assist to complete this Form. This is a requirement under the Environmental Assessment Regulations, 1999 (LI 1652). Also, the Environmental and Social Specialists shall conduct preliminary screening of proposed CERC warehouses using the Environmental and Social Checklist attached in Appendix 1A.

Step 2: Screening

This activity, according with the Environmental Assessment Regulation, 1999 (LI1652) is the responsibility of the EPA. The Agency, within 25 days of receiving the Registration Form take a decision by placing the project at the appropriate level of environmental assessment. The results will be communicated to the implementing agency with reasons, which could be any of the following:

- Objection to the project
- No objection to the project (equivalent to World Bank Category C Project)
- Preliminary Environmental Assessment (PEA) will be required
- Environmental and Social Impact Assessment (ESIA)

For projects receiving the 'no objection' from the EPA equivalent to “Low” risk projects and therefore pose only minor environmental and social risks, the implementing agency may move to implement in accordance with pre-approved standards or codes of practices or preapproved guidelines for environmental and social management. It is expected that the operation of the warehouses will receive a no objection response since these facilities have been in operation for years and general meet the standards of warehouses operation in Ghana.

Environmental Permitting Decision (EPD)

Following the screening of the warehouses request submitted to EPA, MOFA shall be issued an Environmental Permit within 15 working days if the operation of the warehouses is not considered to have significant adverse effect. Where the undertaking is approved, MoFA shall pay processing and permitting fees prior to collection of the permit. The fees are determined based on the Fees and Charges (Amendment) Instrument, 2015 (LI 2228).

Responsibilities for the Implementation of the Screening Process

Table 7.1 provides a summary of the stages and institutional responsibilities for the screening, preparation, assessment, approval and implementation of the CERC activities.

Table 7. 1 Summary of Environmental and Social Screening Processes and Responsibility

No.	Stage	Institutional responsibility	Implementation responsibility
1.	Screening of warehouses to assist in determining level of environmental and social assessment required	MoFA	Environmental and Social Specialists
2	Statutory Registration of projects with EPA	MoFA	Environmental and Social Specialists
3.	Determination of appropriate environmental and social assessment level/ category	EPA	Environmental and Social Specialists
4	E&S Risks categorization and validation	World Bank	Environmental and Social Specialists
5.	If ESIA is necessary although not expected under this CERC Intervention		
5.1	Preparation of Terms of Reference (TOR)	MoFA	Environmental and Social Specialists
5.2	Clearance of TOR and provision of no objection	World Bak	ESRM Unit of Bank and Task Team Leader (TTL) of Bank
5.3	Selection and Contracting of Consultant	MoFA/FSRP Procurement Unit	Procurement Specialist, Environmental and Social Specialists
5.4	Realization of the ESIA, Public consultation and participation, Integration of environmental and social issues and mitigations into project designs, and in tendering/bidding documents	Consultancy firm/ Contractor	Environmental and Social Specialists, Procurement Specialist
6.	Review and Approval	EPA/ World Bank	ESRM unit of World Bank/EPA

7.	Participatory public consultation and disclosure	MoFA/EPA	Environmental and Social Specialists, ESIA Consultant
8.	Implementation of environmental and social assessment and management plan	Sub-project beneficiaries	Environmental and Social Specialists
9.	Development of participatory monitoring indicators	MoFA	Environmental and Social Specialists, Consultants
10.	Surveillance and participatory monitoring	MoFA//EPA/ World Bank	Environmental and Social Specialists

Other relevant World Bank provisions

The FSRP2 CERC -ESMF will make relevant 7 out of the 10 ESSs. While the intervention is not expected to significantly affect natural habitats Schedule condition to be prepared for the CERC intervention will address any impacts to natural habitats. The ESS1 and ESS3 will be the most relevant ESSs under this CERC- ESMF intervention. In accordance the FSRP2 IPMP will be used as a guide for the training of farmers on the storage, use and safe disposal of the fertilizer bags and containers.

7.3.2 Technical Specifications and Standards

Technical specifications

MoFA with technical support from its department and agencies (PPMED, PPSRD etc), will be responsible for the development and presentation of clear guidelines for the design and provision of technical specifications and standards to regards to the CERC interventionFSRP2 shall coordinate these facilities to provide these standards for the operation of the CERC activities. These will ensure the streamlining of approaches and activities for sound implementation of CERC intervention. These will include adequate reference to sector norms and prescribed national codes of practice. The private sector (fertilizer suppliers, transportation companies etc.) will be educated on applicable technical provisions and fit their sub-project activities into these accordingly.

7.3.3 Environmental Standards

The EPA with the Ghana Standards Authority is responsible for setting environmental standards and has in place both general and sector specific guideline values. These standards and in some cases, guidelines are provided for the management of pollutant emissions. In situations where standards have legal backing then these must be followed. Where standards show a large difference from the World Bank General EHS Guidelines, the most stringent standard will be applied. In most cases, these are practically similar.

7.4 Environmental and Social Monitoring and Reporting

Monitoring would be a key component of the CERC-ESMF during CERC activities implementation. Monitoring would be undertaken at the regional and district level to verify the effectiveness of impact management, including the extent to which mitigation measures are successfully implemented. Monitoring would involve three areas namely:

- Compliance monitoring;
- Impact monitoring; and
- Cumulative impact monitoring.

The aim of monitoring of the CERC intervention during the implementation phase would be to:

- Improve environmental and social management practices;
- Check the efficiency and quality of the E&S risk management processes;
- Establish the scientific reliability and credibility of the ESRM for the intervention; and
- Provide the opportunity to report the results on risk management, impacts and proposed mitigation measures CERC intervention implementation.

7.4.1 Compliance Monitoring

This is to verify that the required mitigation measures, which are the environmental and social commitments agreed in the CERC-ESMF and sub-project EAs are implemented. Compliance monitoring would include inspections during transportation, storage, distribution and use of the input to verify the extent to which permit conditions and standards and codes are adhered to.

7.4.2 Impacts Monitoring

Monitoring of impacts of sub-projects and mitigation measures would be the duty of the E&S Specialists of the PIU. The E&S risk management requirements given to the suppliers in the contract specifications would be monitored to ensure that work is conducted in accordance with the laid down mitigation measures. The MoFA through the ESRM Unit of the PIU would ensure suppliers submit information on work progress and challenges in observing the E&S risk management requirements. The monitoring results would form a major part of the reports to be submitted to the EPA, MoFA and World Bank

7.4.3 Cumulative Impact Monitoring

The cumulative impacts from the CERC Intervention on environmental and social resources within the Projects area of influence would be monitored with considerations of other existing or proposed development. There would be collaboration between MoFA and other stakeholders to compare E&S risk management guiding the CERC intervention implementation to ensure comprehensive management of cumulative impacts.

7.5 ESMF Implementation Budget

The estimated budget for the CERC -ESMF implementation covers the cost of supporting and training MOFA, Suppliers, AEAs of MoFA and DDAs to effectively execute their roles outlined in the CERC-ESMF. The estimated cost of support and trainings is USD 89,000 as captured in Table 7.2.

Table 7. 2 ESMF Implementation Budget

No	Activity	Rate ($)	Estimated Cost ($)	Responsibility
1	Screening and assessment of emergencies warehouses to store inputs t	1000 per region visited	16,000.00	MOFA/PIU
2	Facilitate EPA screening process	1000 per region site	16,000	PIU/Regional offices of EPA

3	Establishment Operational of the GM for additional area not covered by FSRP	1000 per region (six region)	16, 000	PIU
5	Capacity Building for relevant CERC implementation institutions carry out E&S responsibilities -NADMO, AEAs not covered under FSRP	500 per training (5 trainings)	2,500	PIU, Regulatory bodies
6	Audit for ESRM performance (Mid - CERC intervention implementation	50,000 per audit	50,000	Consultants
	Development of training materials	1,000	1,000	PIU
Total Budget			**89,000**	

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APPENDIX 1A ENVIRONMENTAL & SOCIAL SCREENING CHECKLIST

This form is to be used by the FSRP PIU to screen potential environmental and social environmental and social risk levels of a proposed subprojects, determine the relevance of Bank environmental and social standards (ESS), propose its E&S risk levels, and the instrument to be prepared for the sub project.

Subject project Name	
Subproject Location	
Subproject Proponent	
Estimated Investment	
Start/Completion Date	

Questions	**Response**		**ESS Relevance**	**Due diligence /Actions**
	Yes	**No**		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of Irrigation facilities and/or associated agriculture production activities?	Yes	No	ESS1	ESIA/ESMP, SEP
Does the subproject involve land acquisition and/or restrictions on land use?			ESS5	RAP/ARAP, SEP
Does the subproject involve acquisition and distribution of agricultural input such as fertilizers, seeds, agrochemicals?			ESS5	ESIA/ESMP, SEP
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for any emergency?			ESS3	ESIA/ESMP, SEP
Does the subproject involve recruitment of workforce including direct, contracted, primary supply, and/or community workers			ESS2	LMP, SEP
Does the subproject involve transboundary transportation of hazardous materials?			ESS3	ESIA/ESMP, SEP
Does the subproject involve use of security personnel during construction and/or operation of civil facilities			ESS4	ESIA/ESMP, SEP
Is the subproject located within or in the vicinity of any ecologically sensitive areas?			ESS6	
Are there any vulnerable groups present in the subproject area and are likely to be affected by the proposed subproject negatively or positively			ESS7	Vulnerable Groups Plan
Is the subproject located within or in the vicinity of any known cultural heritage sites?			ESS8	ESIA/ESMP/SEP
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?			ESS1	ESIA/ESMP/SEP

Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?			OP7.60 Projects in Disputed Areas Governments concerned agree	OP7.60 Projects in Disputed Areas Governments concerned agree
Will the sub project and its ancillary aspects and related activities involve the use or potential pollution of, or be located in international Waterways?			OP7.50 Projects on International Waterways Notification (or exceptions)	OP7.50 Projects on International Waterways Notification (or exceptions)

ENVIRONMENTALLY SENSITIVE AREAS, as defined by *SCHEDULE 5 (Regulation 30 (2)) of the ENVIRONMENTAL ASSESSMENT REGULATIONS, 1999 (LI 1652)*

All areas declared by law as forest reserves, national parks, watershed reserves, wildlife reserves and sanctuaries including sacred groves.

- Areas with potential tourist value.
- Areas which constitute the habitat of any endangered or threatened species of indigenous wildlife (flora and fauna).
- Areas of unique historic, archaeological or scientific interests.
- Areas which are traditionally occupied by cultural communities.
- Areas prone to natural disasters (geological hazards, floods, rainstorms, earthquakes, landslides, volcanic activity etc.).
- Areas prone to bushfires.
- Hilly areas with critical slopes.
- Areas classified as prime agricultural lands.
- Recharge areas of aquifers.
- Water bodies characterized by one or any combination of the following conditions:
- water tapped for domestic purposes;
- water within the controlled and/or protected areas; c. water which support wildlife and fishery activities.
- Mangrove area characterised by one or any combination of the following conditions
- areas with primary pristine and dense growth;
- areas adjoining mouth of major river system;
- areas near or adjacent to traditional fishing grounds;
- areas which act as natural buffers against shore erosion, strong winds or storm floods.

APPENDIX 1B EPA FORM EA1

ENVIRONMENTAL PROTECTION AGENCY, GHANA

ENVIRONMENTAL ASSESSMENT REGISTRATION FORM

(To be completed in Duplicate)

FEE: GHS50,000

Serial No.

FORM EA1

PROPONENT:

Address for correspondence:

Contact person: Position:

Phone No.: Fax No.:

Email:

ASSESSMENT NO:		**FILE NO:**	

Environmental Protection Agency
P.O. Box M 326
Accra, Ghana

Tel: 664697/8, 664223, 662465
Fax: 662690
Email:
support@epagghana.org Web-site: www.epa.gov.gh

*This form shall be submitted to the relevant EPA Regional Office. It is important that you read carefully the guide for completing the form before starting. PROPOSED UNDERTAKING / DEVELOPMENT

Title of proposal (General Classification of undertaking)
……
……

Description of Proposal (nature of undertaking, unit processes [flow diagram], raw materials, list of chemicals (source, types and quantities), storage facilities, wastes/ by-products (solid, liquid and gaseous)

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

PROPOSED SITE

Location (attach a site plan/map)

Plot/House No. Street/Area Name Town District/Region
Major Landmarks (if any) Current zoning
Distance to nearest residential and/or other facilities

Adjacent land uses (existing & proposed)
……
……..
……
……..

Site description (immediate activities should be described)

INFRASTRUCTURE AND UTILITIES

Structures (buildings and other facilities proposed or existing on site
Access to water (source, quantity)

Access to power (type, source & quantity)

Drainage provision in the project area

Nearness to water body

Access to project site:

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

ENVIRONMENTAL IMPACTS

Potential environmental effects of proposed undertaking (Both constructional and operational phases)

OTHER ENVIRONMENTAL ISSUES
Potential significant risks and hazards associated with the proposal (including occupational health and safety). State briefly relevant environmental studies already done and attach copies as appropriate.

CONSULTATIONS
Views of immediate adjourning neighbours and relevant stakeholders (provide evidence of consultation)

MANAGEMENT OF IMPACTS AND ENVIRONMENTAL ENHANCEMENT MEASURES

ATTACHMENTS
Tick appropriate boxes below indicating that the following required documents have been attached:

☐ Authentic site plan (signed by a licensed surveyor and certified by Survey Dept.) Block plan of the site
☐ Photographs of the site
☐ Fire report from the Ghana National Fire Service
☐ Zoning letter from Town & Country Planning Department

DECLARATION:

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

_____
_____

Signature Date

* Use additional sheets where spaces provided in 3, 4 and 5 are inadequate

APPENDIX 2 GENERIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The proposed ESMP outline is provided below:

1.0 Executive Summary

2.0 Introduction

- Background
- Objectives of the project
- Purpose of the Environmental Assessment
- Methodology and Approach
- Report organization

3.0 Description of project

4.0 Applicable legal, policy and institutional framework including World Bank Environmental and Social standards

6.0 Analysis of project alternatives

6.0 Environmental and social baseline conditions environment

7.0 Stakeholder/public consultation

8.0 Assessment of potential project environmental and social impacts/risks

9.0 Management and enhancement measures of risks and impacts

10.0 Environmental and social management plans

- Implementation plan with detailed Institutional Arrangements including the responsibilities of the Contractors and Supervising Engineers
- Environmental and social monitoring plan
- Estimated cost of the ESMP
- Capacity building
- Grievance mechanism

11.0 Decommissioning

12 References

13 Appendices

- Correspondence
- Minutes of engagement
- Environmental and social clauses

Table below is a matrix to be considered and filled out for applicable subprojects that will require a separate Environmental and Social Management Plan (ESMP) according to the impact level.

Subproject Activity	Potential Environmental or Social Impacts	Proposed Mitigation Measures	Responsibility (including enforcement and coordination)	Monitoring Requirements (including supervision)	Time Frame or Schedule	Cost Estimate

NB: Refer to Parent ESMF for detail sample of ESMP, GM and Citizen engagement, SEA/SH GM system.

Appendix 2 -Assessment of Crop Loss due to to Drought in Ghana, 2024

REGION	CROP	TOTAL ACREAGE CROPPED (HA)	TOTAL ACREAGE AFFECTED (HA)	AVERAGE YIELD/HA (MT/HA)	TOTAL EXPECTED PRODUCTION LOSS (MT)	ESTIMATED FARM GATE PRICE/MT (GHS)	ESTIMATED TOTAL VALUE LOSS (GHS) - Affected	INVESTMENT LOSS (GHS)	ESTIMATED TOTAL VALUE LOSS - 100% (GHS)	INVESTMENT LOSS (100%) GHS
	A	B	C	D	E= C*D	F	G= F*E	H=G/3	I=B*D*F	J=I/3
UPPER EAST	Maize	73,236	21,971	1.81	39,767	3,902	155,171,411	51,723,804	517,238,038	172,412,679
	Rice	43,943	13,183	2.91	38,362	3,950	151,530,844	50,510,281	505,102,814	168,367,605
	Soya	22,595	6,779	1.4	9,490	5,943	56,398,476	18,799,492	187,994,919	62,664,973
	Sorghum	57,379	17,214	1.36	23,411	6,149	143,951,976	47,983,992	479,839,921	159,946,640
	Groundnut	43,049	12,915	1.30	16,789	12,530	210,367,548	70,122,516	701,225,161	233,741,720
	Millet	43,688	13,106	1.11	14,548	7,423	107,990,576	35,996,859	359,968,587	119,989,529
SUB-TOTAL		**283,890**	**85,167**		-		**825,410,832**	**275,136,944**	**2,751,369,439**	**917,123,146**
UPPER WEST	Maize	99,944	49,972	2.43	121,432	3,902	473,827,508	157,942,503	947,655,016	315,885,005
	Rice	11,517	5,759	2.43	13,993	3,950	55,272,962	18,424,321	110,545,925	36,848,642
	Soya	62,720	31,360	1.72	53,939	5,943	320,560,666	106,853,555	641,121,331	213,707,110
	Sorghum	81,144	40,572	2.15	87,230	6,149	536,376,040	178,792,013	1,072,752,080	357,584,027
	Groundnut	83,327	41,664	1.8	74,994	12,530	939,678,579	313,226,193	1,879,357,158	626,452,386
	Millet	31,446	15,723	2.05	32,232	7,423	239,259,249	79,753,083	478,518,499	159,506,166
SUB-TOTAL		**370,098**	**185,049**		-		**2,564,975,004**	**854,991,668**	**5,129,950,009**	**1,709,983,336**
NORTHERN	Maize	159,109	79,555	2.00	159,109	3,902	620,843,318	206,947,773	1,241,686,636	413,895,545
	Rice	109,614	54,807	3.01	164,969	3,950	651,627,827	217,209,276	1,303,255,653	434,418,551
	Soya	62,979	31,490	2.08	65,498	5,943	389,255,565	129,751,855	778,511,130	259,503,710
	Sorghum	47,142	23,571	2.14	50,442	6,149	310,167,489	103,389,163	620,334,978	206,778,326
	Groundnut	50,139	25,070	2.00	50,139	12,530	628,241,670	209,413,890	1,256,483,340	418,827,780
	Millet	30,912	15,456	1.92	29,676	7,423	220,281,385	73,427,128	440,562,770	146,854,257
SUB-TOTAL		**459,895**	**229,948**		-		**2,820,417,253**	**940,139,084**	**5,640,834,507**	**1,880,278,169**
NORTH EAST	Maize	34,242	17,121	2.15	36,810	3,902	143,633,205	47,877,735	287,266,411	95,755,470
	Rice	29,806	14,903	3.24	48,286	3,950	190,728,594	63,576,198	381,457,188	127,152,396
	Soya	23,625	11,813	1.7	20,081	5,943	119,342,869	39,780,956	238,685,738	79,561,913
	Sorghum	17,510	8,755	1.64	14,358	6,149	88,288,572	29,429,524	176,577,144	58,859,048
	Groundnut	31,164	15,582	1.92	29,917	12,530	374,865,523	124,955,174	749,731,046	249,910,349
	Millet	22,245	11,123	1.52	16,906	7,423	125,494,723	41,831,574	250,989,445	83,663,148
SUB-TOTAL		**158,592**	**79,296**		-		**1,042,353,486**	**347,451,162**	**2,084,706,971**	**694,902,324**
SAVANNA	Maize	41,368	20,684	2.25	46,539	3,902	181,595,178	60,531,726	363,190,356	121,063,452
	Rice	35,797	17,899	2.21	39,556	3,950	156,244,956	52,081,652	312,489,912	104,163,304
	Soya	13,432	6,716	1.96	13,163	5,943	78,229,848	26,076,616	156,459,697	52,153,232