



WILPHIN ENTERPRISE

**Proposed 500 Mt Warehouse
Construction and Operation at
Anateem in the Bolgatanga
Municipal, UE/R**

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

FINAL PLAN

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ACRONYMS AND ABBREVIATIONS

CSR	Corporate Social Responsibility
DEMC	District Environmental Management Committee
EA	Environmental Assessment
EHS	Environment, Health and Safety
EPA	Environmental Protection Agency
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FASDEP	Food and Agriculture Sector Development Plan
GCAP	Ghana Commercial Agricultural Project
GIDA	Ghana Irrigation Development Authority
GNFS	Ghana National Fire Service
GPRS	Growth and Poverty Reduction Strategy
GRM	Grievance Redress Mechanism
LI	Legislative Instrument
METASIP	Medium Term Agriculture Sector Investment Plan
MOFA	Ministry of Food and Agriculture
OP	Operational Procedures
PESMP	Preliminary Environmental and Social Management Plan
PNDC	Provisional National Defense Council
PPE	Personal Protective Equipment
RCC	Regional Coordinating Council
SADA	Savannah Accelerated Development Authority
SMCD	Supreme Military Council Decree
TCPD	Town and Country Planning Department
WB	World Bank

EXECUTIVE SUMMARY

Wilphin Enterprise, a limited liability company registered under the Companies Code of Ghana of 1963, Act 179, and one of the 31 selected Ghana Commercial Agricultural project (GCAP) Grantees, proposes to construct and operate a 500Mt warehouse on a 0.4ha land at Anateem in the Bolgatanga Municipal of the Upper East Region. The warehouse will be utilised for the storage of maize, rice and soya beans from Wilphin Enterprise's 1600ha farm spread across the Bolgatanga Municipal and Kassena Nankana Municipal. The harvested cereals (rice and maize) and soya beans will be processed and bagged on the farm and transported in hired trucks to the proposed warehouse for storage. The stored cereals and soya beans will be marketed and sold locally through distributors and retailers.

Wilphin Enterprise, as a beneficiary of the GCAP project, is required to comply with national environmental regulations including the Environmental Assessment Regulation LI 1652 (1999), and the World Bank Safeguards Policies. This Environmental and Social Management Plan is prepared to guide the management of Wilphin Enterprise towards effective environmental, social and occupational health and safety actions in the implementation of the proposed 500Mt Warehouse Construction and Operation to ensure sustainable development.

Potential Adverse Environmental and Social Impacts

The potential adverse environmental and social impacts arising from the construction and operation of the 500Mt warehouse are stated below.

Warehouse Construction Phase

- Impacts to soil and sediment transport;
- Visual intrusion;
- Air quality deterioration;
- Noise nuisance;
- Generation and disposal of solid waste;
- Occupational health & safety; and
- Sanitation issues, public health and safety.

Farm Operations and Maintenance Phase

- Pest/rodent infestation and contamination of produce;
- Post-harvest losses;
- Waste water generation and management;
- Fire risks;
- Occupational health and safety;
- Public health and safety; and
- Sustainability of the farming venture.

Mitigation measures for potential adverse impacts

The mitigation measures for the potential adverse impacts are summarised in the table below.

Mitigation measures for potential adverse environmental and social impacts

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
WAREHOUSE CONSTRUCTION PHASE					
1.	Impacts to soil and sediment transport	<ul style="list-style-type: none"> Land preparation Excavation and civil works Transport of materials to project site 	<ul style="list-style-type: none"> Wilphin Enterprise will carry out vegetation clearance when all logistics and funds have been secured to commence the project. This will ensure that the land is not left bare over long periods and exposed to agents of erosion (wind and rainfall). Wilphin Enterprise will ensure that excavated soils will be immediately reused by the Contractor for backfilling, and where it cannot be reused, collected for disposal at a dump site approved by the Bolgatanga Municipal Assembly. This will prevent leaving exposed soils over long periods. Wilphin Enterprise will ensure heaped sand for construction of the warehouse will be covered with tarpaulin to prevent transport of the sand by wind and rainfall. 	Director/Contractor	1,000
2.	Visual intrusion	<ul style="list-style-type: none"> All construction phase activities 	<ul style="list-style-type: none"> Trees outside the demarcated area for the warehouse at the project site will not be removed by Wilphin Enterprise. Wilphin Enterprise will ensure the warehouse construction site is cordoned off by the Contractor with roofing sheets to reduce public view of the construction activities. Good housekeeping will be ensured by Wilphin Enterprise at the project site to prevent unsightly conditions. 	Director/Contractor	2,000
3.	Air quality deterioration	<ul style="list-style-type: none"> Land preparation Excavation and civil works Transport of materials and equipment to project site 	<ul style="list-style-type: none"> Wilphin Enterprise will ensure regular wetting of the untarred road leading to the project site to minimize dust emissions in the community during transportation of materials to and from the project site. Wilphin Enterprise will ensure trucks using the untarred roads to and from the warehouse will drive at low speed to minimize dust emissions in the community. Wilphin Enterprise will ensure trucks transporting sand and excavated material to and from the project site will be covered with tarpaulin to prevent windblown dust/soil particles during transport. Wilphin Enterprise will ensure the contractor covers heaped sand for construction of 	Director/Contractor	1,500

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			the warehouse with tarpaulin to prevent windblown dust/soil particles.		
4.	Noise nuisance	<ul style="list-style-type: none"> • Transport of materials and equipment to project site • Excavation and civil works • Disposal of construction spoil and waste in general 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure trucks conveying materials to and from the project will avoid unnecessary tooting of horn to minimize noise generated in the community. • Wilphin Enterprise will ensure construction activities that generate noise (e.g. hammering) will be avoided at night to prevent public disturbance. 	Director/Contractor	-
5.	Generation and disposal of solid waste	<ul style="list-style-type: none"> • Land preparation • Construction of site office and temporary storage facility; • Transportation of materials and equipment to the site • Excavation and civil works; • Decommissioning of site office and temporary storage facility 	<ul style="list-style-type: none"> • Wilphin Enterprise will allow the community members (Anateem) to collect the stems and branches of any trees and shrubs removed at the project site for use as poles, fuelwood and fencing material. The community members will also be allowed to collect any twigs and leaves which can be fed to livestock or used as mulch. The remaining vegetative material which cannot be reused will be collected and dumped at an approved dump site. • Wilphin Enterprise will ensure efficient use of construction materials to minimize the waste to be generated from the construction of the warehouse. Excavated soil material will be re-used in backfilling and levelling as much as possible. Excavated material and other construction waste such as wood chippings which cannot be re-used at the site will be collected and disposed at an approved landfill site. • Wilphin Enterprise will ensure the contractor provides bins at the site for collection and disposal of plastic waste and polythene materials such as lubricant containers, drinking water sachets and carrier bags at an approved dump site. • Wilphin Enterprise will ensure trucks conveying sand, stone chippings and construction waste to and from the site are not overloaded and possibly covered with net/tarpaulin to avoid falloffs in the community during transport. 	Director/Contractor	1,500
6.	Occupational health and safety issues	<ul style="list-style-type: none"> • All construction phase activities 	<ul style="list-style-type: none"> • Wilphin Enterprise will hire an experienced contractor with requisite licenses and well-trained workers for the construction of the warehouse. • Wilphin Enterprise will ensure that the selected contractor has a Health & Safety Policy to guide the construction activities. 	Director/Contractor	2,000

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<ul style="list-style-type: none"> • Wilphin Enterprise will also ensure that the contractor provides and enforces the use of appropriate personal protective equipment such as safety boots, hard huts/helmets, hand gloves, earplugs and nose masks. Sanctions will be implemented where this is not followed. • Wilphin Enterprise will ensure that construction equipment such as concrete mixing machines and block moulding machines hired for construction are in good condition and are well serviced, and the operators are experienced and well trained. Good conditioned and well maintained equipment will reduce frequent breakdowns, noise nuisance and injury which could affect the operator's and other workers health and safety. • Wilphin Enterprise will ensure that the selected contractor has adequate training in first aid and first aid kits are provided on site to treat minor ailments. However, major cases will be referred to the nearest hospital or health post. 		
7.	Sanitation issues , public health and safety	<ul style="list-style-type: none"> • Land preparation • Construction of site office and temporary storage facility; • Transportation of materials and equipment to the site • Excavation and civil works; • Decommissioning of site office and temporary storage facility • Disposal of construction spoil and waste in general 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure the contractor provides adequate waste bins at the project site for use to minimise indiscriminate disposal of plastic and polythene material, cans and food waste by the workers. These bins will be frequently transported and emptied at approved dump sites. This will prevent the littering of the project site with cans and bottles which could collect water and breed mosquitoes. • Wilphin Enterprise will ensure waste from construction activities, including metal scraps, wood chippings, netting material, rubber seals, spend lubricating oil containers, nails, etc. will be collected on a frequent basis and disposed of at approved dumpsites or landfill sites. • Wilphin Enterprise will ensure all trenches or excavations made for the construction of the warehouse will be properly covered to prevent accidents and collection of stagnant water which could breed mosquitoes. • Wilphin Enterprise will ensure drivers of trucks transporting materials to and from 	Director/Contractor	1,500

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<p>the project site adhere to road and traffic regulations such as following speed limits and avoiding parking in unauthorised areas to prevent road accidents.</p> <ul style="list-style-type: none"> • Wilphin Enterprise will ensure a temporary toilet facility is provided by the contractor at the project site for use by the construction workers. This will prevent “free range” defecation by the workers. 		
Sub-Total 1 (Warehouse Construction Phase):					9,500
WAREHOUSE OPERATIONS AND MAINTENANCE PHASE					
8.	Pest/rodent infestation and contamination of produce	<ul style="list-style-type: none"> • Warehouse management 	<ul style="list-style-type: none"> • Wilphin Enterprise will adopt an integrated insect and rodent management system to control insects and rodent infestation in the warehouse. This will include: <ul style="list-style-type: none"> ○ Good housekeeping practices such as regular cleaning inside the warehouse and proper packing of produce for ease of inspection; ○ Keeping the surroundings of the warehouse clean and free from weeds; ○ Preventing insects and rodents from entering the warehouse by regularly inspecting all doors, walls, windows and roof for any openings and repairing them; ○ Use of biological control, such as cats, to keep mice and other rodents from the warehouse; ○ Use of rodent traps; and ○ Chemical control/fumigation through the use of EPA approved agrochemicals to control pests and rodents. 	Foreman	4,000 annually
9.	Post-harvest losses	<ul style="list-style-type: none"> • Warehouse management 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure harvested cereals are properly dried to about 13-14% moisture content to make them suitable for storage. • Wilphin Enterprise will provide proper ventilation at the warehouse and regularly inspect the roof to ensure there are no openings for leakages. This is to prevent damp conditions and rain water from getting into the warehouse. • Wilphin Enterprise will stack bags of produce on pallets off the ground and away 	Director/ Foreman	-

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<p>from walls to prevent any damp (moisture) from the floor and walls from reaching the produce.</p> <ul style="list-style-type: none"> • Wilphin Enterprise will ensure the warehouse and the surrounding environment is always kept clean and free from weeds. • Bags of grains will be properly arranged on pallets and the pallets will be arranged in rows with adequate spacing in between to ensure ease of cleaning the warehouse and inspection of produce for rodents and insects. • Wilphin Enterprise will ensure new produce from the farm are not mixed with old produce in the warehouse by storing the new produce at a different section in the warehouse. • Wilphin Enterprise will adopt “first in first out” practices to ensure that old produce are always sold first. • Any infested produce will be immediately removed by Wilphin Enterprise and destroyed to prevent infestation of other produce. • Chemical treatment/fumigation, by using only EPA approved agrochemicals, will be used by Wilphin Enterprise to control pest/rodents and diseases where necessary. 		
10.	Waste generation and management	<ul style="list-style-type: none"> • Transport of produce from farm to warehouse • Offloading and packing of produce in warehouse • Warehouse management and security • Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> • Wilphin Enterprise will provide adequate bins at the warehouse, including the office and parking area, for the collection of solid waste such as paper, drinking water sachets, bottles and cans, used by the workers at the warehouse. This will prevent indiscriminate disposal of solid waste at the warehouse. • Wilphin Enterprise will contract an authorised waste management company such as Zoomlion to regularly empty the bins (such as weekly) for disposal at an approved dump site. • Wastewater from the washrooms will be channelled in a septic tank to be constructed on the site. The septic tank will be emptied when full by an authorised waste management company. 	Director/Foreman	3,000 annually
11.	Fire risk	<ul style="list-style-type: none"> • Warehouse management and security 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure the Contractor of the warehouse uses high quality electrical wiring materials. 	Director /Foreman	4,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<ul style="list-style-type: none"> • Firefighting and detection equipment such as smoke detectors, alarms and fire extinguishers will be installed by Wilphin Enterprise at the warehouse. • Wilphin Enterprise will establish an Emergency Assembly Point at the warehouse. • Wilphin Enterprise will train all workers on fire prevention and control at the warehouse. This will be done in collaboration with the Ghana National Fire Service (GNFS) of the Bolgatanga Municipal. • Emergency contact numbers of the Bolgatanga Municipal's GNFS will be conspicuously displayed at the warehouse. • Wilphin Enterprise will ensure proper ventilation systems are included in warehouse design and construction. • All equipment and machinery will be regularly serviced and maintained by Wilphin Enterprise. 		
12.	Occupational health and safety	<ul style="list-style-type: none"> • Transport of produce from farm to warehouse • Offloading and packing of produce in warehouse • Warehouse management and security • Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> • An occupational health and safety policy as well as standard operational procedures will be developed by Wilphin Enterprise to guide the operations of the warehouse. • The occupational health and safety procedures and standard operational procedures will be strictly enforced by Wilphin Enterprise and sanctions applied where they are not adhered to. • Wilphin Enterprise will provide training for all the workers at the warehouse on the occupational health and safety procedures and standard operational procedures. • Wilphin Enterprise will provide appropriate personal protective equipment (PPE) including overalls, nose masks, safety boots and helmets for workers. • The appropriate use of PPEs will be enforced by Wilphin Enterprise at the warehouse and sanctions will be applied where this is not followed. • Wilphin Enterprise will provide all necessary equipment such as pallet jacks, wheel burrows/ warehouse trolleys, etc. required for safe handling and movement of materials at the warehouse • Wilphin Enterprise will ensure proper ventilation and lighting at the warehouse. 	Director / Foreman	8,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<ul style="list-style-type: none"> • Wilphin Enterprise will ensure proper supervision of all operations at the warehouse. • Wilphin Enterprise will ensure security at the warehouse by installing Closed-Circuit Television (CCTV) cameras at the warehouse and premises and also employ a permanent security man at the warehouse. • Fire detection, warning and fighting equipment such as smoke detectors, fire alarms and fire extinguishers to be provided by Wilphin Enterprise at the warehouse (as indicated above) will help in the early detection and control of fires. 		
13.	Public health and safety	<ul style="list-style-type: none"> • Transport of produce from farm to warehouse • Warehouse management and security • Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure drivers of trucks/vehicles transporting materials to and from the project site adhere to road and traffic regulations such as following speed limits and avoiding parking in unauthorised areas to prevent road accidents and reduce dust emissions. • Only well maintained and regularly serviced trucks/vehicles will be hired by Wilphin Enterprise to avoid frequent breakdowns and associated road safety risks. • Wilphin Enterprise will regularly maintain the surroundings of the warehouse to prevent bushy areas and stagnant water which could lead to breeding of mosquitoes. • Workers of the warehouse will use toilet facilities provided at the warehouse. 	Foreman	-
14.	Sustainability of the farming venture	All project activities	<ul style="list-style-type: none"> • A well trained and experienced Foreman will be employed by Wilphin Enterprise to oversee the operations of the warehouse. • Wilphin Enterprise will ensure proper inventory keeping on receiving, storage and delivery of produce and materials from the warehouse. • Wilphin Enterprise will ensure compliance with all relevant national regulatory procedures such as renewal of certificates with the GNFS and Department of Factories Inspectorate. • Produce from the warehouse should be sold at realistic prices to generate enough revenue for the operations of the warehouse. • The District Department of Agriculture will be regularly consulted by Wilphin Enterprise on technical advice for warehouse management. 	Director/ Foreman	2,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
Sub-Total 2 (Warehouse Operations and Maintenance Phase):					21,000
GRAND TOTAL (Sub-Total 1 + Sub-Total 2):					30,500

Environmental and Social Monitoring Plan

Monitoring programmes developed for the proposed Crop Farming Project include the following:

- Occupational/Public health and safety;
- Waste management;
- Fire risks;
- Pest/rodent infestation and contamination of produce;
- Post-harvest losses;
- Public complaints/grievances; and
- Sustainability of farming venture.

The environmental and social monitoring plan requires detailed cost analysis after project development to determine the budget needed for implementation. Initial cost estimates provided indicates that over **Fourteen Thousand Ghana Cedis (GH¢14,000.00)** will be needed annually for the programme.

Monitoring Checklist

A monitoring checklist for the above mentioned environmental and social parameters is as follows:

No.	Impact issue/component	Monitoring Parameters/ Indicators	Monitoring Site	Frequency	Responsibility (Implementation/ Supervision)
ENVIRONMENTAL MONITORING					
1.	Waste Management	-Availability and use of bins -Records on frequency and location of waste disposal site of domestic and construction waste. -Records on agrochemical containers collected and returned to suppliers for recycling/proper disposal	-Warehouse	Continuous	Foreman/ Farm Manager
2.	Environmental compliance	-Annual environmental, health and safety audits -Preparation of Annual Environmental Reports (in line with LI 1652)	-	Annually	Consultants/ Farm Manager
		-Preparation of Environmental and Social Management Plan (in line with LI 1652)		18 months after receiving permit and subsequently every 3 years	
		-EPA permit well displayed on premise		Continuously displayed	
SOCIAL/ECONOMIC/SAFETY MONITORING					
1.	Occupational/ Public health and safety	-Availability and proper use of PPEs -Adherence to health and safety procedures -Records on frequency, type and source of illness/accident/injury -Records on trainings received on	-Warehouse	Continuous	Foreman/ Farm Manager

No.	Impact issue/component	Monitoring Parameters/ Indicators	Monitoring Site	Frequency	Responsibility (Implementation/ Supervision)
		health and safety			
2.	Fire risks	-Availability of firefighting equipment at warehouse (smoke detectors, fire alarm, fire extinguishers) -Maintenance records of machinery and equipment, including firefighting equipment -Training records on fire prevention and control -Hanging/loose electrical wires -Records on fire occurrence	-Warehouse	Continuous	Foreman/ Farm Manager
3.	Pest/rodent infestation and contamination of produce	-Cleaning roster -Inspection records -Chemical control/ Fumigation records -Maintenance records -Records on contaminated produce	-Warehouse	Continuous	Foreman/ Farm Manager
4.	Post-harvest losses	-Adequate ventilation at warehouse -Condition of warehouse environment (cleanliness, weed growth, etc.) -Arrangement of produce in the warehouse -Physical condition of produce -Records on produce (including records on quantity stored and records on infested produce) -Chemical control/ fumigation records	-Warehouse	Continuous	Foreman/ Farm Manager
5.	Public complaints/ Grievances	-Type and nature of complaints and concerns; -Complaint records (Record of grievance and number resolved/unresolved) -Management and Stakeholder Meetings	Project community	Continuous	Foreman/ Farm Manager
6.	Sustainability of farming venture	-Qualification of Farm Manager -Training records for workers -Pricing of produce compared to prevailing market prices -Records on sales -Records on resource consumption (such as utility bills, use of agrochemicals, etc.) -Maintenance records -Financial records	-Warehouse	Continuous	Foreman/ Farm Manager

Management Programme to Meet Requirements

The management programmes proposed to meet the mitigation measures and monitoring programmes are as follows:

- Management strategy;
 - Management Structuring; and
 - Workers' information and training.
- Performance monitoring and institutional reporting requirement;
 - Environmental and social monitoring programmes;
 - Annual environmental and safety audit and review;
 - Annual environmental report and ESMP;
 - Factories Inspectorate Department and Ghana National Fire Service;
 - Public participation;
 - Grievance redress mechanism;
 - Awareness creation; and
 - Data collection, documentation and archiving.

Emergency Response Procedures

Response measures have been proposed for the following emergencies which may arise during the project implementation:

- Fire;
- Medical or accidents; and
- Agrochemical spill;

Conclusion

Wilphin Enterprise acknowledges that its activities and operations do impact on the environment, workers, customers and the public and is very mindful of its obligations towards the protection of the environment and ensure the health and safety of the workers, customers and the community.

The environmental and health and safety action plans outlined in this ESMP as well as emergency response plans will be implemented and monitored to ensure effective mitigation and management of the project impacts. The implementation of the proposed mitigation measures for the Warehouse Construction Phase will cost Wilphin Enterprise about **GH¢9,500**, while the implementation of the mitigation and monitoring measures for the Warehouse Operations and Maintenance Phase will cost Farmer Training Centre about **GH¢35,000** annually.

However, the benefits of a sound environmental, social, health and safety management will offset the costs. The benefits include high productivity, improved health of workers, reduction in medical bills, elimination or reduction of possible legal issues, projection of good public image and better relationship with regulatory agencies.

1.0 INTRODUCTION

The Ghana Commercial Agriculture Project (GCAP) commenced in 2012 under the auspices of the Ministry of Food and Agriculture (MOFA) with investment support from the World Bank and USAID. GCAP as part of its implementation plan has established a Matching Grant Scheme to leverage private investment to spur inclusive and competitive agricultural growth that integrates smallholder farms into commercial agriculture in Ghana. The first call for Proposals for matching grants, launched in December 2013, culminated in the award of grants to 31 firms (or Grantees).

Wilphin Enterprise, a limited liability company registered under the Companies Code of Ghana of 1963, Act 179, and one of the 31 GCAP Grantees, proposes to construct and operate a 500Mt warehouse on a 0.4ha land at Anateem in the Bolgatanga Municipal of the Upper East Region. The warehouse will be utilised for the storage of maize, rice and soya beans from Wilphin Enterprise's 1600ha farm spread across the Bolgatanga Municipal and Kassena Nankana Municipal. The harvested cereals (rice and maize) and soya beans will be processed and bagged on the farm and transported in hired trucks to the proposed warehouse for storage. The stored cereals and soya beans will be marketed and sold locally through distributors and retailers.

Wilphin Enterprise, as a beneficiary of the GCAP project, is required to comply with national environmental regulations including the Environmental Assessment Regulation LI 1652 (1999), and the World Bank Safeguards Policies. GCAP, as part of the technical assistance it provides to the Grantees under components/ subcomponents 2 and 3, has contracted Messrs SAL Consult Limited to support 27 selected Grantees with the following:

- i. Preparation and completion of their Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP);
- ii. To obtain environmental permits from the Environmental Protection Agency (EPA); and
- iii. To comply with the World Bank's Safeguards Policy on Environmental Assessment (OP 4.01).

This Environmental and Social Management Plan is prepared to guide the management of Wilphin Enterprise towards effective environmental, social and occupational health and safety actions in the implementation of the proposed 500Mt Warehouse Construction and Operation to ensure sustainable development.

2.0 POLICY, LEGAL AND REGULATORY FRAMEWORK

The relevant national and sector policies and plans, national legal and institutional frameworks and World Bank safeguards policies to guide the implementation of the proposed 500Mt Warehouse Construction and Operation to ensure sustainable development and compliance with national and international regulations are briefly described in this chapter.

Table 1: Policy, Legal and Regulatory Framework

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
Policy Framework		
Ghana Shared Growth and Development Agenda, 2010	<p>It provides for the Vision for the Agricultural, Environment and Natural Resource Sectors in Chapter four.</p> <p>The main focus of the agricultural sector is to accelerate the modernization of agriculture and ensure its linkage with industry through the application of science, technology and innovation.</p> <p>The modernized agriculture sector is expected to underpin the transformation of the economy through job creation, increased export earnings, food security, and supply of raw materials for value addition and rural development as well as significant reduction in the incidence of poverty.</p>	<p>The proposed warehouse will be utilized for the storage of rice, maize and soya beans, thereby reducing post-harvest losses, increasing market value of the stored produce and contributing to food security. The project will create jobs for about 20 people who will be engaged in the construction of the warehouse and about 10 people to be employed for the operation of the warehouse. Over 20 indirect jobs are expected to be created by the project (such as for food vendors, petty traders, suppliers of raw materials, etc.). It will also promote rural development through job creation and increased income for Wilphin Enterprise's outgrowers whose produce will be stored at the warehouse.</p>
National Environmental Policy, 2012	<p>The ultimate aim of the Policy is to improve the surroundings, living conditions and the quality of life of the entire citizenry, both present and future. It seeks to promote sustainable development through ensuring a balance between economic development and natural resource conservation. The policy thus makes a high quality environment a key element supporting the country's economic and social development.</p>	<p>The proposed project must promote sustainable development by including economic, social and environmental considerations.</p>
National Land Policy, 1999	<p>The key aspects of the policy relevant to the project include:</p> <ul style="list-style-type: none"> • The use of any land in Ghana for sustainable development, the protection of water bodies and the environment and any other socioeconomic activity will be determined through national land use planning guidelines based on sustainable principles in the long term national interest. 	<p>The proposed land for the construction of the warehouse is not a protected area, forest or wildlife estate.</p>

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	<ul style="list-style-type: none"> • Land categories outside Ghana's permanent forest and wildlife estates are available for such uses as agriculture, timber, mining and other extractive industries, and human settlement within the context of a national land use plan. • All land and water resources development activities must conform to the environmental laws in the country and where Environmental Impact Assessment report is required this must be provided. • Environmental protection within the 'polluter pays' principle will be enforced. 	The implementation of the project will conform to the environmental laws of the country which includes, registration with EPA, Preliminary Environmental and Social Assessment and obtaining an environmental permit prior to commencement.
National Environmental Action Plan/Policy, 1994	<p>The National Environmental Action Plan was initiated to define a set of policy actions, related investments and institutional strengthening activities that would make Ghana's development strategy more environmentally sustainable. The Plan formulated a national environmental policy as the framework for implementing the Action Plan.</p> <p>The Policy aims at ensuring a sound management of resources and the environment, and to avoid any exploitation of these resources in a manner that might cause irreparable damage to the environment.</p>	The design, construction and operation of the warehouse will take into consideration measures to promote the sustainable use of natural resources and ensure environmental management such as efficient use of construction materials and implementing an effective waste management system to prevent indiscriminate waste disposal.
National Employment Policy, 2012	The National Employment Policy indicates that poverty is still high at about 28.5% and that there is a strong correlation between the employment situation and poverty. The policy states that the key source of demand for labour emanates from the productive sectors of the economy, namely, agriculture, industry and service. One of the key strategies of the employment policy is to promote farm and non-farm rural employment through modernization of agriculture, improving the productivity of farmers and contract farming arrangements, promoting effective linkages between farm and non-farm activities among others.	The proposed warehouse construction and operation will provide about 30 direct employment opportunities for those engaged in the construction and operation of the warehouse. Over 20 indirect jobs are expected to be created by the project (such as for food vendors, petty traders, suppliers of raw materials, etc.). The project will also enhance the productivity and livelihood of the outgrowers whose produce will be stored at the warehouse by reducing post-harvest losses and increasing the market value of their produce.
Food and Agriculture Sector Development Policy (FASDEP).	The revised FASDEP of 2006 (FASDEP II) emphasizes the sustainable utilization of all resources and commercialization of activities in the sector with market-driven growth in mind and with emphasis on	The use of the proposed warehouse for the storage of farm produce will reduce post-harvest losses, thereby

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	<p>environmental sustainability.</p> <p>The Medium Term Agriculture Sector Investment Plan (METASIP) developed to implement FASDEP II over the medium term 2011-2015 includes the following programmes:</p> <ul style="list-style-type: none"> ▪ Food security and emergency preparedness; ▪ Improved growth in incomes; ▪ Increased competitiveness and enhanced integration into domestic and international markets; and ▪ Science and technology applied in food and agriculture development 	<p>enhancing food security, increasing the market value and competitiveness of the stored produce, and improve income and livelihood of the farmers.</p>
National Legal Framework		
The Constitution of the Republic of Ghana, 1992	The Constitution includes some provisions to protect the right of individuals to private property, and also sets principles under which citizens may be deprived of their property in the public interest (described in Articles 18 and 20). Article 18 provides that “Every person has the right to own property either alone or in association with others.”	Wilphin Enterprise is a sole ownership enterprise which is regulated and governed by the constitution of Ghana.
Environmental Protection Agency (EPA) Act 1994, Act 490	The Environmental Protection Agency (EPA) Act 1994 (Act 490) gives mandate to the Agency to ensure compliance of all investments and undertakings with laid down Environmental Assessment (EA) procedures in the planning and execution of development projects, including compliance in respect of existing ones. The Environmental Protection Agency (EPA) Act 490 Section 12 of 1994 confers enforcement and control powers on the EPA to compel existing companies to submit environmental or pollution management plans on their operations as a management tool for effective pollution control. The EPA is the responsible for issuing environmental permits for operations such as this project subject to EPA review.	The implementation of proposed project will be in compliance with the Environmental Assessment (EA) procedures for approval of the EPA, and Wilphin Enterprise will obtain an environmental permit from the EPA for the construction and operation of the warehouse.
Environmental Assessment Regulations 1999, LI 1652	The Environmental Assessment Regulations 1999 (LI 1652) enjoins any proponent or person to register an undertaking with the Agency and obtain an Environmental Permit prior to commencement of the project. This regulation allows the EPA to place proposed undertakings at the appropriate level of environmental assessment. The LI 1652 seeks to ensure that development is undertaken in a sustainable environment.	<p>The project is complying with LI 1652 through the following:</p> <ul style="list-style-type: none"> i. The project has been registered with the EPA; ii. Wilphin Enterprise will submit an ESMP to EPA;

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
		<p>iii. Wilphin Enterprise will obtain a permit from the EPA for the construction and operation of the warehouse;</p> <p>iv. Wilphin Enterprise will submit Annual Reports to the EPA;</p> <p>v. Wilphin Enterprise will pay statutory fees for the EPA permit; and</p> <p>vi. FTC will visibly display their EPA permit at the warehouse.</p>
The Fees and Charges (Amendment Instrument), 2015 (LI 2228)	The Fees and Charges (Amendment) Instrument 2015 (L.I. 2228) provides comprehensive rates, fees and charges collectable by Ministries, Department and Agencies (MDAs), such as the Environmental Protection Agency, for goods and services delivered to the public.	Wilphin Enterprise, in obtaining an environmental permit from the EPA, will pay all necessary fees and charges as prescribed by LI 2228.
Local Government Act 1993, Act 462	This Act establishes and regulates the local government system and gives authority to the RCC and the District Assembly to exercise political and administrative power in the Regions and District, provide guidance, give direction to, and supervise all other administrative authorities in the regions and district respectively. The Assembly is mandated to initiate programmes for the development of basic infrastructure and provide municipal works and services as well as be responsible for the development, improvement and management of human settlements and the environment in the district.	Wilphin Enterprise will work closely with the Bolgatanga Municipal Assembly in the development of the proposed project
Ghana National Fire Service Act 1997 (Act 537)	The Act re-establishes the National Fire Service to provide for the management of undesired fires and to make provision for related matters. The objective of the Service is to prevent and manage undesired fire. For the purpose of achieving its objective; the Service is to organise public fire education programmes to create and sustain awareness of the hazards of fire, heighten the role of the individual in the prevention of fire and provide technical advice for building plans in respect of machinery and structural layouts to facilitate escape from fire, rescue operations and fire management. The GNFS has a rural fire department responsible for the control and management of bushfires.	This act requires the proponent to register with the GNFS who will provide services in the management of all fire outbreaks. The GNFS is mandated to create awareness and sensitization programmes on fire prevention and control.
The Fire Precaution (Premises) Regulations 2003, LI 1724	The Fire Precaution (Premises) Regulations 2003 (LI 1724) requires all premises intended for use as workplaces to have Fire Certificates and confers enforcement powers on the Ghana National Fire Service	The Regulation requires Wilphin Enterprise to obtain a fire certificate for the operation of the proposed

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	(GNFS) to demand a fire certificate for premises that are put to use as a place of work.	warehouse.
Factories, Offices and Shops Act 1970, Act 328	The Factories, Offices and Shops Act of 1970 (Act 328), as amended by the Factories Offices and Shops (Amendment) Law 1983 PNDCL 66, the Factories Offices and Shops (Amendment) Law 1991 PNDCL 275 s.1 (a), and the Ghana National Fire Service Act, 1997 (Act 537) requires all proponents to register every factory/workplace with the Chief Inspector of Factories Inspectorate Division. The Act requires all factories, offices and shops to among others, notify the Chief Inspector of accidents, dangerous occurrences and industrial diseases, post in a prominent position in every factory the prescribed abstract of the act and other notices and documentations, as well as outlines the regulations to safeguard the health and safety of workers.	The Act enjoins Wilphin Enterprise to register the project with the Factories Inspectorate Division, post the abstract of the act at a prominent place at the premises and notify the Chief Inspector of any accidents, dangerous occurrences and industrial diseases.
The Labour Act 2003, Act 651	Section 118(1) of the Labour Act 2003 (Act 651) stipulates that it is the duty of an employer to ensure that every worker employed works under satisfactory, safe and healthy conditions. Act 651 contains a number of specific provisions relating to an employer's duty of care to its workers. These include providing and maintaining "at the workplace, plant and system of work that are safe and without risk to health" and taking "steps to prevent contamination of the workplaces by, and protect the workers from, toxic gases, noxious substances, vapours, dust, fumes, mists and other substances or materials likely to cause risk to safety or health". A worker is required to report situations that he believes may pose "an imminent and serious danger to his or her life, safety or health".	Wilphin Enterprise will be committed to ensuring the safety and health of the workers by providing a safe working environment and providing the required apparatus and measures to mitigate impacts.
Workmen's Compensation Law 1987	It is to provide for the payment of compensation to workmen for personal injuries caused by accidents arising out and in the course of their employment. The tenets of the law places a large share of the burden of supporting workers injured at the workplace on the shoulders of the employers.	The proposed project has health and accident risks. The Law enjoins Wilphin Enterprise as an employer to ensure and be responsible for the safety of its workers and reward compensation to its workers for injuries arising in the course of work in accordance with this Law.
Lands Commission Act 2008, Act 767	The Lands Commission Act 2008 re-establishes the Lands Commission to integrate the operations of public service land institutions in order to secure effective and efficient land administration to provide for related matters. The objectives of the Commission are to:	The proposed development is in line with the nation's development goals for the agricultural sector which include enhancing post-harvest management and

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	<ul style="list-style-type: none"> ▪ Promote the judicious use of land by the society and ensure that land use is in accordance with sustainable management principles and the maintenance of a sound eco-system; and ▪ Ensure that land development is effected in conformity with the nation's development goals. 	improving food security.
Ghana Investment Promotion Centre Act 1994, Act 478	The Ghana Investment Promotion Centre Act 1994 (Act 478) requires that every investor wishing to invest in the country must in its appraisal of proposed investment projects or enterprises, "...have regard to any effect the enterprise is likely to have on the environment and measures proposed for the prevention and control of any harmful effects to the environment...".	Wilphin Enterprise acknowledges that the proposed project has environmental impacts and measures have been proposed to address the impacts, such as the preparation of this ESMP.
Town and Country Planning Ordinance, 1945, CAP 84	The Town and Country Planning Act 1945, CAP 84 seeks to ensure the orderly and progressive development of land, town and other areas whether urban or rural for conserving and developing resources and to preserve and improve amenities thereof, and for related matters. It is the principal legislation in force regulating the general planning and development of human settlements.	Wilphin Enterprise was guided by this Act and consulted the Town and Country Planning Department of the Bolgatanga Municipal in the selection of the project site and the design and planning of the project.
The Children's Act 1998, Act 560	The Act spells out the rights of the child, quasi-judicial/judicial child adjudication, parentage /custody/access/maintenance, fosterage/ adoption and employment of children issues. The Act defines a child as a person below the age of 18 years. The minimum age for admission of a child to employment is fifteen years and the minimum age for the engagement of a person in hazardous work is eighteen years. No person shall engage a child in exploitative labour and labour is exploitative of a child if it deprives the child of its health, education or development.	Wilphin Enterprise will be guided by this Act in the employment of labour for the operation of the warehouse. Wilphin Enterprise will also ensure labour engaged by the contractor during construction are not below the minimum age.
Institutional Framework		
Environmental Protection Agency	<p>The EPA is the body responsible for regulating the environment and ensuring the implementation of government policies on the environment. The functions of the Agency include:</p> <ul style="list-style-type: none"> ▪ ensuring compliance with any laid down environmental impact assessment procedures in the planning and execution of development projects, including compliance in the respect of existing projects; ▪ promoting effective planning in the management of the environment; ▪ imposing and collecting environmental protection levies in accordance with the Environmental 	Wilphin Enterprise will follow and abide by all EPA procedures (refer to Environmental Assessment Regulations 1999, LI 1652) in the implementation of the project.

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	<p>Protection Agency Act 1994, Act 490 or regulations made under the Act; and</p> <ul style="list-style-type: none"> ▪ acting in liaison and co-operation with government agencies, District Assemblies and other bodies and institutions to control pollution and generally protect the environment. 	
Savanna Accelerated Development Authority (SADA)	<p>The Savanna Accelerated Development Authority (SADA) is to coordinate the Sustainable Development Initiative of the Northern Savanna. Following severe flooding in the north in 2007, 2008 and 2009, the NDI strategy was approved by Parliament in December 2009 as a comprehensive strategy for closing the development gap with the rest of the country while increasing resilience to climatic extremes. SADA is overseen by a Board with a secretariat, and has a strategy, policy and coordination mandate within the savanna ecological zone, including the three (3no.) northern regions (Northern, Upper East and Upper West Regions) and areas of the Brong-Ahafo Region.</p>	<p>The proposed project area falls within the Northern Savanna and under the jurisdiction of SADA. SADA is therefore a key stakeholder to the project.</p>
Ministry of Food and Agriculture (MOFA)	<p>MOFA promotes sustainable agriculture and agribusiness through research and technology development, effective extension and other support services to farmers, processors, and traders for improved human livelihood. The Food and Agriculture Sector Development Policy (FASDEP II) and the Medium Term Agricultural Sector Investment Plan (METASIP) seeks to guide development and interventions in the agriculture sector. The revised policy (FASDEP II), among other things, emphasizes enhancement of productivity of the commodity value chain, through the application of science and technology, with emphasis on environmental sustainability. The policy also ensures consistency with national development objectives as specified in the Growth and Poverty Reduction Strategy II (GPRS II).</p>	<p>MOFA is a major stakeholder of the project. The Regional and District Departments of Agriculture have the mandate of offering extension services and support to ensure sustainability and the successful implementation of the project.</p>
Local Government Authority	<p>The Regional Coordinating Council (RCC) and the Metropolitan /Municipal/District Assemblies (MMDAs) are responsible for the overall development of the region and metropolis/municipality/district respectively.</p> <p>Acts 462 and 480, which established the current district assembly structure, designate the District/Municipal/Metropolitan Assembly as the planning authority, charged with the overall development of the district.</p> <p>With regard to environmental management at the district level, the District Environmental Management</p>	<p>The project is located in the Bolgatanga Municipal and will be influenced by decisions and plans of the Upper East Regional Coordinating Council and the Bolgatanga Municipal Assembly. The Assembly will play key role in the successful implementation and related activities of the project.</p>

Policy/Legal/Regulatory Framework	Key Compliance Requirements	Applicability to Grantee's Undertaking/Project
	<p>Committees (DEMC) has been set up by law (Act 462) to among other things:</p> <ul style="list-style-type: none"> ▪ promote and provide guidelines for the establishment of community level environmental committees to put into effect the environmental programmes of the Assembly in the community; and ▪ Plan and recommend to the DA, strategies and activities for the improvement and protection of the environment with emphasis on fragile and sensitive areas, river courses etc. 	
Traditional Authorities	<p>In Ghana, people of common descent owe allegiance to a symbol of collective authority, such as the 'stool' for the Akans of southern Ghana or the 'skin' for the northern peoples. Traditional authorities play a role in the administration of the area. At the village level, family and land disputes and development issues are also traditionally dealt with by the village chief and elders.</p> <p>In addition to providing an important leadership role, especially in the more rural areas, chiefs act as custodians of stool/skin land, can mobilise their people for developmental efforts and arbitrate in the resolution of local disputes. Although chiefs have no direct political authority, some are appointed by the Government on District Assemblies.</p>	The Traditional Council of the project area is a key stakeholder to the project.

2.1 World Bank Safeguard Policies

The World Bank (WB) has published policies/procedures to guide the safe development of projects it is funding. Among the ten (10) WB Safeguards Policies, two (2) – **OP 4.01** and **OP 4.09** – are triggered by the proposed project. The WB safeguards policies and a summary of their core requirements are provided in the **Table 2**.

Table 2: Summary of World Bank Safeguard Policies

No	World Bank Safeguard Policy	Summary of core requirements	Potential for Trigger under proposed project	Remarks or recommendation for proposed project
1	OP 4.01 Environmental Assessment	Requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and physical cultural resources); and trans boundary and global environmental aspects. It categorizes proposed projects into categories A, B, C or FI based on the extent of adverse impacts anticipated from the project. For Category A and B projects, an ESMP is to be prepared to guide the Implementation of mitigation measures for all identified environmental impacts from the proposed warehouse project.	Triggered	The proposed warehouse falls under category B and this EMP is in line with the requirement of the policy.
2	OP 4.04: Natural Habitats	Do not finance projects that degrade or convert critical habitats. Support projects that affect non- critical habitats only if no alternatives are available and if acceptable mitigation measures are in place. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water areas where most of the native plant and animal species are still present).	Not triggered	Project locations and design will not affect any critical habitats.
3	OP 4.09: Pest Management	Support integrated approaches to pest management, identify pesticides that may be financed under the project and develop appropriate pest management plan to address this.	Triggered	GCAP has prepared a Pest Management Plan (PMP) which will guide Wilphin Enterprise's operations.
4	OP 4.36: Forest	Aim is to reduce deforestation, enhance the environmental contribution of forested areas, promote afforestation, reduce poverty, and	Not triggered	Project location and design will not affect any critical forests.

No	World Bank Safeguard Policy	Summary of core requirements	Potential for Trigger under proposed project	Remarks or recommendation for proposed project
		encourage economic development. Support sustainable and conservation oriented forestry. Do not finance projects that involve significant conversion or degradation of critical forest areas.		
5	OP 4.11: Physical Cultural Resources	Investigate and inventorise cultural resources potentially affected. Include mitigation measures when there are adverse impacts on physical cultural resources or avoid if possible	Not triggered	No culturally sensitive sites identified.
6	OP 4.12: Involuntary Resettlement	Assist displaced persons in their effort to improve or at least restore their standards of living. Avoid resettlement where feasible or minimise. Displaced persons should share in project profits. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. The policy prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.	Not triggered	The study did not find any evidence of existence or occurrence of Involuntary Resettlement.
7	OP 4.10: Indigenous Peoples	Screen to determine presence of indigenous peoples in project area. Policy triggered whether potential impacts are positive or negative. Design mitigation measures and benefits that reflect indigenous peoples' cultural preferences.	Not triggered	No indigenous groups were identified.
8	OP 4.37: Safety of Dams	Requires that experienced and competent professionals design and supervise construction, and that the borrower adopts and implements dam safety measures through the project cycle. The policy distinguishes between small and large dams by defining small dams as those normally less than 15 meters in height. Large dams are 15 meters or more in height.	Not triggered	The proposed project does not involve the construction of dams.
9	OP 7.50: Projects on International Waterways	Ascertain whether riparian agreements are in place, and ensure that riparian states are informed of and do not object to project interventions.	Not triggered	The proposed project does not involve international waters.
10	OP 7.60: Projects in Disputed Areas	Ensure that claimants to disputed areas have no objection to proposed project.	Not triggered	No issues of land dispute were identified.

3.0 ENVIRONMENT, HEALTH AND SAFETY (EHS) POLICY

3.1 Environmental, Health & Safety Policy

Wilphin Enterprise's Environmental, health & safety policy is to minimise the environmental impacts of its operations to the barest minimum and continuously ensure a healthy and safe working environment at the warehouse. The objectives of the Policy are as follows:

1. Ensure resource use efficiency through the adoption of the 4 R's (Reduce, Reuse, Recycle and Recover) to minimize waste generation;
2. Adopt and implement an effective environmental, health and safety management system;
3. Provide and enforce the appropriate use of personal protective equipment for all operations;
4. Minimize accidents and incidents to the barest minimum; and
5. Ensure compliance with all environmental, health and safety regulations.

3.2 Corporate Social Responsibility (CSR) Policy

Wilphin Enterprise acknowledges that it operates within society and its relations with society has an influence on its operations and performance and vice versa. Wilphin Enterprise's CSR Policy is therefore to promote community development through post-harvest management and enhanced livelihood of farmers. The objectives of the CSR policy are to:

1. Improve the livelihoods of farmers in the community through capacity building and the provision of storage facilities;
2. Enhance the market value and competitiveness of stored produce;
3. Contribute to the welfare and socioeconomic development of the Anateem community; and
4. Operate in a responsible and socially acceptable manner which will guarantee acceptance in its stakeholder communities.

4.0 PROJECT OPERATIONS AND ACTIVITY DESCRIPTION

The proposed project will involve the construction and operation of a 500Mt warehouse at Anateem in the Bolgatanga Municipal of the Upper East Region. The warehouse will also have an office, washroom, storage room for farm inputs (seeds and agrochemicals) and packing area. The warehouse will be utilised for the storage of maize, rice and soya beans from Wilphin Enterprise's 1600ha farm spread across the Bolgatanga Municipal and Kassena Nankana Municipal.

The harvested cereals (rice and maize) and soya beans from Wilphin Enterprise's farm will be processed and bagged on the farm and transported in hired trucks to the proposed warehouse for storage. Purchased seeds and agrochemicals for use at the farm will be temporarily stored in the storage room of the warehouse and delivered to the farm when required. Bottled agrochemicals will be packed in shelves in the storage room under dry and cool conditions as recommended by the supplier. Bagged seeds and agrochemicals will be packed on wooden platforms at separate sections of the storage room. The bagged rice, maize and soya beans will be packed on wooden platforms in the warehouse. The stored cereals and soya beans will be marketed and sold locally through distributors and retailers.

4.1 Project Activities

The main activities under the proposed 500Mt Warehouse Construction and Operation are stated below.

4.1.1 Preparatory Phase Activities

Preparatory phase activities include among others:

- Feasibility studies to determine economic viability of project;
- Land acquisition;
- Stakeholder consultations;
- Statutory permitting activities from EPA, Factories Inspectorate, GNFS, etc.

4.1.2 Warehouse Construction Phase Activities

Warehouse construction phase activities will mainly include:

- Land preparation(vegetation clearance , stump removal ,site demarcation);
- Construction of site office and temporary storage facility;
- Transportation of materials (wood, sand, chippings, iron rods, etc.) and equipment (concrete mixing machine, block machine, etc.) to the site;
- Excavation and civil works;
- Decommissioning of site office and temporary storage facility; and
- Disposal of construction spoil and waste in general.

4.1.3 Warehouse Operations and Maintenance Phase Activities

Warehouse operation and maintenance phase activities include:

- Transport of produce from farm to warehouse;
- Offloading and packing of produce in warehouse;

- Warehouse management and security;
- Loading trucks and delivery to customers/distributors; and
- Marketing.

The environmentally-based process flow diagram for the major operational activities is shown in **Figure 1**.

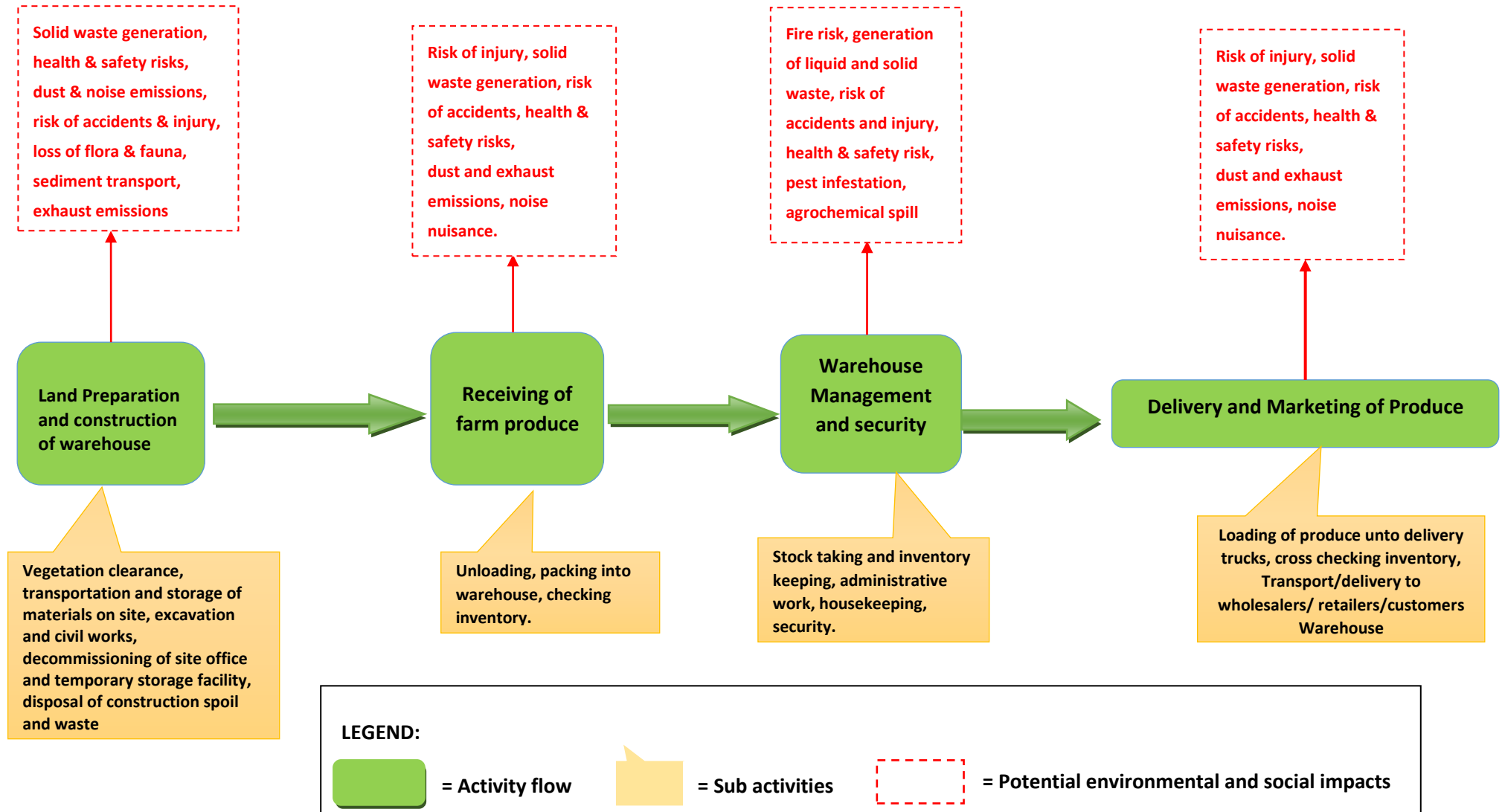


Figure 1: Environmentally-based process flow diagram for the 500Mt Warehouse Construction and Operation

5.0 ENVIRONMENTAL AND SOCIAL MITIGATION PLAN

The potential adverse environmental and social impacts arising from the construction and operation of 500Mt warehouse and the proposed mitigation measures are provided in **Table 3** below.

Table 3: Environmental and Social Mitigation Plan for Potential Adverse Impacts

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
WAREHOUSE CONSTRUCTION PHASE					
1.	Impacts to soil and sediment transport	<ul style="list-style-type: none"> Land preparation Excavation and civil works Transport of materials to project site 	<ul style="list-style-type: none"> Wilphin Enterprise will carry out vegetation clearance when all logistics and funds have been secured to commence the project. This will ensure that the land is not left bare over long periods and exposed to agents of erosion (wind and rainfall). Wilphin Enterprise will ensure that excavated soils will be immediately reused by the Contractor for backfilling, and where it cannot be reused, collected for disposal at a dump site approved by the Bolgatanga Municipal Assembly. This will prevent leaving exposed soils over long periods. Wilphin Enterprise will ensure heaped sand for construction of the warehouse will be covered with tarpaulin to prevent transport of the sand by wind and rainfall. 	Director/Contractor	1,000
2.	Visual intrusion	<ul style="list-style-type: none"> All construction phase activities 	<ul style="list-style-type: none"> Trees outside the demarcated area for the warehouse at the project site will not be removed by Wilphin Enterprise. Wilphin Enterprise will ensure the warehouse construction site is cordoned off by the Contractor with roofing sheets to reduce public view of the construction activities. Good housekeeping will be ensured by Wilphin Enterprise at the project site to prevent unsightly conditions. 	Director/Contractor	2,000
3.	Air quality deterioration	<ul style="list-style-type: none"> Land preparation Excavation and civil works Transport of materials and 	<ul style="list-style-type: none"> Wilphin Enterprise will ensure regular wetting of the untarred road leading to the project site to minimize dust emissions in the community during transportation of materials to and from the project site. 	Director/Contractor	1,500

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
		equipment to project site	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure trucks using the untarred roads to and from the warehouse will drive at low speed to minimize dust emissions in the community. • Wilphin Enterprise will ensure trucks transporting sand and excavated material to and from the project site will be covered with tarpaulin to prevent windblown dust/soil particles during transport. • Wilphin Enterprise will ensure the contractor covers heaped sand for construction of the warehouse with tarpaulin to prevent windblown dust/soil particles. 		
4.	Noise nuisance	<ul style="list-style-type: none"> • Transport of materials and equipment to project site • Excavation and civil works • Disposal of construction spoil and waste in general 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure trucks conveying materials to and from the project will avoid unnecessary tooting of horn to minimize noise generated in the community. • Wilphin Enterprise will ensure construction activities that generate noise (e.g. hammering) will be avoided at night to prevent public disturbance. 	Director/Contractor	-
5.	Generation and disposal of solid waste	<ul style="list-style-type: none"> • Land preparation • Construction of site office and temporary storage facility; • Transportation of materials and equipment to the site • Excavation and civil works; • Decommissioning of site office and temporary storage facility 	<ul style="list-style-type: none"> • Wilphin Enterprise will allow the community members (Anateem) to collect the stems and branches of any trees and shrubs removed at the project site for use as poles, fuelwood and fencing material. The community members will also be allowed to collect any twigs and leaves which can be fed to livestock or used as mulch. The remaining vegetative material which cannot be reused will be collected and dumped at an approved dump site. • Wilphin Enterprise will ensure efficient use of construction materials to minimize the waste to be generated from the construction of the warehouse. Excavated soil material will be re-used in backfilling and levelling as much as possible. Excavated material and other construction waste such as wood chippings which cannot be re-used at the site will be collected and disposed at an approved landfill site. • Wilphin Enterprise will ensure the contractor provides bins at the site for collection and disposal of plastic waste and polythene materials such as lubricant containers, drinking water sachets and carrier bags at an approved dump site. • Wilphin Enterprise will ensure trucks conveying sand, stone chippings and 	Director/Contractor	1,500

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			construction waste to and from the site are not overloaded and possibly covered with net/tarpaulin to avoid falloffs in the community during transport.		
6.	Occupational health and safety issues	<ul style="list-style-type: none"> • All construction phase activities 	<ul style="list-style-type: none"> • Wilphin Enterprise will hire an experienced contractor with requisite licenses and well-trained workers for the construction of the warehouse. • Wilphin Enterprise will ensure that the selected contractor has a Health & Safety Policy to guide the construction activities. • Wilphin Enterprise will also ensure that the contractor provides and enforces the use of appropriate personal protective equipment such as safety boots, hard hats/helmets, hand gloves, earplugs and nose masks. Sanctions will be implemented where this is not followed. • Wilphin Enterprise will ensure that construction equipment such as concrete mixing machines and block moulding machines hired for construction are in good condition and are well serviced, and the operators are experienced and well trained. Good conditioned and well maintained equipment will reduce frequent breakdowns, noise nuisance and injury which could affect the operator's and other workers health and safety. • Wilphin Enterprise will ensure that the selected contractor has adequate training in first aid and first aid kits are provided on site to treat minor ailments. However, major cases will be referred to the nearest hospital or health post. 	Director/Contractor	2,000
7.	Sanitation issues , public health and safety	<ul style="list-style-type: none"> • Land preparation • Construction of site office and temporary storage facility; • Transportation of materials and equipment to the site • Excavation and civil works; • Decommissioning of site office and temporary storage facility 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure the contractor provides adequate waste bins at the project site for use to minimise indiscriminate disposal of plastic and polythene material, cans and food waste by the workers. These bins will be frequently transported and emptied at approved dump sites. This will prevent the littering of the project site with cans and bottles which could collect water and breed mosquitoes. • Wilphin Enterprise will ensure waste from construction activities, including metal scraps, wood chippings, netting material, rubber seals, spend lubricating oil 	Director/Contractor	1,500

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
		<ul style="list-style-type: none"> Disposal of construction spoil and waste in general 	<ul style="list-style-type: none"> containers, nails, etc. will be collected on a frequent basis and disposed of at approved dumpsites or landfill sites. Wilphin Enterprise will ensure all trenches or excavations made for the construction of the warehouse will be properly covered to prevent accidents and collection of stagnant water which could breed mosquitoes. Wilphin Enterprise will ensure drivers of trucks transporting materials to and from the project site adhere to road and traffic regulations such as following speed limits and avoiding parking in unauthorised areas to prevent road accidents. Wilphin Enterprise will ensure a temporary toilet facility is provided by the contractor at the project site for use by the construction workers. This will prevent “free range” defecation by the workers. 		
Sub-Total 1 (Warehouse Construction Phase):					9,500
WAREHOUSE OPERATIONS AND MAINTENANCE PHASE					
8.	Pest/rodent infestation and contamination of produce	<ul style="list-style-type: none"> Warehouse management 	<ul style="list-style-type: none"> Wilphin Enterprise will adopt an integrated insect and rodent management system to control insects and rodent infestation in the warehouse. This will include: <ul style="list-style-type: none"> Good housekeeping practices such as regular cleaning inside the warehouse and proper packing of produce for ease of inspection; Keeping the surroundings of the warehouse clean and free from weeds; Preventing insects and rodents from entering the warehouse by regularly inspecting all doors, walls, windows and roof for any openings and repairing them; Use of biological control, such as cats, to keep mice and other rodents from the warehouse; Use of rodent traps; and Chemical control/fumigation through the use of EPA approved agrochemicals to control pests and rodents. 	Foreman	4,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
9.	Post-harvest losses	<ul style="list-style-type: none"> • Warehouse management 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure harvested cereals are properly dried to about 13-14% moisture content to make them suitable for storage. • Wilphin Enterprise will provide proper ventilation at the warehouse and regularly inspect the roof to ensure there are no openings for leakages. This is to prevent damp conditions and rain water from getting into the warehouse. • Wilphin Enterprise will stack bags of produce on pallets off the ground and away from walls to prevent any damp (moisture) from the floor and walls from reaching the produce. • Wilphin Enterprise will ensure the warehouse and the surrounding environment is always kept clean and free from weeds. • Bags of grains will be properly arranged on pallets and the pallets will be arranged in rows with adequate spacing in between to ensure ease of cleaning the warehouse and inspection of produce for rodents and insects. • Wilphin Enterprise will ensure new produce from the farm are not mixed with old produce in the warehouse by storing the new produce at a different section in the warehouse. • Wilphin Enterprise will adopt “first in first out” practices to ensure that old produce are always sold first. • Any infested produce will be immediately removed by Wilphin Enterprise and destroyed to prevent infestation of other produce. • Chemical treatment/fumigation, by using only EPA approved agrochemicals, will be used by Wilphin Enterprise to control pest/rodents and diseases where necessary. 	Director/ Foreman	-
10.	Waste generation and management	<ul style="list-style-type: none"> • Transport of produce from farm to warehouse • Offloading and packing of produce in warehouse 	<ul style="list-style-type: none"> • Wilphin Enterprise will provide adequate bins at the warehouse, including the office and parking area, for the collection of solid waste such as paper, drinking water sachets, bottles and cans, used by the workers at the warehouse. This will prevent indiscriminate disposal of solid waste at the warehouse. • Wilphin Enterprise will contract an authorised waste management company such as 	Director/Foreman	3,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
		<ul style="list-style-type: none"> • Warehouse management and security • Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> • Zoomlion to regularly empty the bins (such as weekly) for disposal at an approved dump site. • Wastewater from the washrooms will be channelled in a septic tank to be constructed on the site. The septic tank will be emptied when full by an authorised waste management company. 		
11.	Fire risk	<ul style="list-style-type: none"> • Warehouse management and security 	<ul style="list-style-type: none"> • Wilphin Enterprise will ensure the Contractor of the warehouse uses high quality electrical wiring materials. • Firefighting and detection equipment such as smoke detectors, alarms and fire extinguishers will be installed by Wilphin Enterprise at the warehouse. • Wilphin Enterprise will establish an Emergency Assembly Point at the warehouse. • Wilphin Enterprise will train all workers on fire prevention and control at the warehouse. This will be done in collaboration with the Ghana National Fire Service (GNFS) of the Bolgatanga Municipal. • Emergency contact numbers of the Bolgatanga Municipal's GNFS will be conspicuously displayed at the warehouse. • Wilphin Enterprise will ensure proper ventilation systems are included in warehouse design and construction. • All equipment and machinery will be regularly serviced and maintained by Wilphin Enterprise. 	Director /Foreman	4,000 annually
12.	Occupational health and safety	<ul style="list-style-type: none"> • Transport of produce from farm to warehouse • Offloading and packing of produce in warehouse • Warehouse management and security • Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> • An occupational health and safety policy as well as standard operational procedures will be developed by Wilphin Enterprise to guide the operations of the warehouse. • The occupational health and safety procedures and standard operational procedures will be strictly enforced by Wilphin Enterprise and sanctions applied where they are not adhered to. • Wilphin Enterprise will provide training for all the workers at the warehouse on the occupational health and safety procedures and standard operational procedures. • Wilphin Enterprise will provide appropriate personal protective equipment (PPE) 	Director / Foreman	8,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<p>including overalls, nose masks, safety boots and helmets for workers.</p> <ul style="list-style-type: none"> The appropriate use of PPEs will be enforced by Wilphin Enterprise at the warehouse and sanctions will be applied where this is not followed. Wilphin Enterprise will provide all necessary equipment such as pallet jacks, wheel burrows/ warehouse trolleys, etc. required for safe handling and movement of materials at the warehouse Wilphin Enterprise will ensure proper ventilation and lighting at the warehouse. Wilphin Enterprise will ensure proper supervision of all operations at the warehouse. Wilphin Enterprise will ensure security at the warehouse by installing Closed-Circuit Television (CCTV) cameras at the warehouse and premises and also employ a permanent security man at the warehouse. Fire detection, warning and fighting equipment such as smoke detectors, fire alarms and fire extinguishers to be provided by Wilphin Enterprise at the warehouse (as indicated above) will help in the early detection and control of fires. 		
13.	Public health and safety	<ul style="list-style-type: none"> Transport of produce from farm to warehouse Warehouse management and security Loading trucks and delivery to customers/distributors 	<ul style="list-style-type: none"> Wilphin Enterprise will ensure drivers of trucks/vehicles transporting materials to and from the project site adhere to road and traffic regulations such as following speed limits and avoiding parking in unauthorised areas to prevent road accidents and reduce dust emissions. Only well maintained and regularly serviced trucks/vehicles will be hired by Wilphin Enterprise to avoid frequent breakdowns and associated road safety risks. Wilphin Enterprise will regularly maintain the surroundings of the warehouse to prevent bushy areas and stagnant water which could lead to breeding of mosquitoes. Workers of the warehouse will use toilet facilities provided at the warehouse. 	Foreman	-
14.	Sustainability of the farming venture	All project activities	<ul style="list-style-type: none"> A well trained and experienced Foreman will be employed by Wilphin Enterprise to oversee the operations of the warehouse. Wilphin Enterprise will ensure proper inventory keeping on receiving, storage and 	Director/ Foreman	2,000 annually

No.	Potential Environmental and Social Impacts	Project Activities	Proposed Mitigation Measures	Responsibility	Cost Estimates (Gh¢)
			<p>delivery of produce and materials from the warehouse.</p> <ul style="list-style-type: none"> • Wilphin Enterprise will ensure compliance with all relevant national regulatory procedures such as renewal of certificates with the GNFS and Department of Factories Inspectorate. • Produce from the warehouse should be sold at realistic prices to generate enough revenue for the operations of the warehouse. • The District Department of Agriculture will be regularly consulted by Wilphin Enterprise on technical advice for warehouse management. 		
Sub-Total 2 (Warehouse Operations and Maintenance Phase):					21,000
GRAND TOTAL (Sub-Total 1 + Sub-Total 2):					30,500

6.0 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Environmental and social monitoring is an essential component of a post project review phase following Environmental and Social Assessment. The monitoring of various environmental and social parameters will also help to confirm any predicted impact or otherwise and address the effectiveness of the implementation of the mitigation measures. The environmental and social monitoring plan proposed for the proposed 500Mt Warehouse Construction and Operation is presented in **Table 4**. A checklist for monitoring of the environmental and social parameters is attached as an **Annex**.

Table 4: Environmental and Social Monitoring Plan

No.	Identified Impacts	Environmental/ Social Component	Monitoring Parameters	Monitoring Site	Measurements	Frequency	Responsibility	Cost Estimate/ Year (GH¢)
ENVIRONMENTAL MONITORING								
1.	Generation and disposal of solid waste	Waste Management	-Availability and use of bins -Records on frequency and location of waste disposal site of domestic and construction waste. -Records on agrochemical containers collected and returned to suppliers for recycling/proper disposal	-Warehouse	Record keeping and analysis	Continuous	Foreman	*as part of job functions of Foreman
2.	Environmental Auditing and Reporting	Environmental compliance	-Annual environmental, health and safety audits -Preparation of Annual Environmental Reports (in line with LI 1652)	-	Analysis of audit reports/ Environmental Assessment Regulations, LI 1652	Annually	Farm Manager/ Consultants	10,000
			-Preparation of Environmental and Social Management Plan (in line with LI 1652)			18 months after receiving permit and subsequently every 3 years		
			-EPA permit well displayed on premise			Continuously displayed		
SOCIAL/ECONOMIC/SAFETY MONITORING								
1.	Occupational/Public health and safety issues	Workers/Public health and safety	-Availability and proper use of PPEs -Adherence to health and safety procedures -Records on frequency, type and source of illness/accident/injury -Records on trainings received on health	-Warehouse	Health & Safety inventory, audit and review	Continuous	Foreman	*as part of job functions of Foreman

No.	Identified Impacts	Environmental/ Social Component	Monitoring Parameters	Monitoring Site	Measurements	Frequency	Responsibility	Cost Estimate/ Year (GH₵)
			and safety					
2.	Fire risks	Fire management	-Availability of firefighting equipment at warehouse (smoke detectors, fire alarm, fire extinguishers) -Maintenance records of machinery and equipment, including firefighting equipment -Training records on fire prevention and control -Hanging/loose electrical wires -Records on fire occurrence	-Warehouse	Fire safety inventory, audit and review	Continuous	Foreman	*as part of job functions of Foreman
3.	Pest/rodent infestation and contamination of produce	Harvested produce	-Cleaning roster -Inspection records -Chemical control/ Fumigation records -Maintenance records -Records on contaminated produce	-Warehouse	Record keeping and analysis	Continuous	Foreman	*as part of job functions of Foreman
4.	Post-harvest losses	Harvested produce	-Adequate ventilation at warehouse -Condition of warehouse environment (cleanliness, weed growth, etc.) -Arrangement of produce in the warehouse -Physical condition of produce -Records on produce (including records on quantity stored and records on infested produce) -Chemical control/ fumigation records	Warehouse	Record keeping and analysis	Continuous	Foreman	*as part of job functions of Foreman
5.	Public Complaints/	Stakeholder	-Type and nature of complaints and	-	Record keeping and	Continuous	Foreman	4,000

No.	Identified Impacts	Environmental/ Social Component	Monitoring Parameters	Monitoring Site	Measurements	Frequency	Responsibility	Cost Estimate/ Year (GH₵)
	Grievances	Management	concerns; -Complaint records (Record of grievance and number resolved/unresolved) -Management and Stakeholder Meetings		analysis			
6.	Sustainability of farming venture	Sustainability	-Qualification of Farm Manager -Training records for farmers/ workers -Pricing of produce compared to prevailing market prices -Records on sales -Records on resource consumption (such as utility bills, use of agrochemicals, etc.) -Maintenance records -Financial records	-Warehouse	Record keeping and analysis	Continuous	Foreman/ Farm Manager	*as part of job functions of Foreman/ Farm Manager
TOTAL								14,000

7.0 MANAGEMENT PROGRAMME TO MEET REQUIREMENTS

The management programmes proposed to meet the mitigation measures and monitoring programmes are presented in this chapter.

7.1 Management Strategy

Management Structuring

Wilphin Enterprise shall appoint a Foreman to oversee the day-to-day operations of the warehouse and an Administrative Officer who will be in charge of administrative duties and marketing of the produce. The Foreman shall also be assigned the responsibility of Environmental, Health and Safety Management and will be in charge of implementation of environmental, health and safety procedures. The Foreman and Administrative Officer shall report directly to the Director. The Director of Wilphin Enterprise, the Foreman and Administrative Officer shall hold monthly meetings to deliberate and discuss the operations of the warehouse.

The main environmental, health and safety management functions of the Foreman will include:

1. Lead the implementation of environmental, health and safety policies of the warehouse;
2. Liaise with the Director to ensure all required PPEs, waste bins and other logistics are provided for the operations of the warehouse;
3. Ensuring adherence to environmental, health and safety procedures and the correct use of PPEs provided for workers in carrying out their activities;
4. Ensuring waste bins provided at the warehouse are appropriately used and emptied on time;
5. Keeping records and reporting all incidents/accidents and illnesses to the Director;
6. Undertaking disciplinary actions in consultation with the Director against workers who don't comply with health and safety procedures;
7. Liaise with regulatory institutions such as EPA, Department of Factories Inspectorate and GNFS.

The organizational structure for Wilphin Enterprise's 500Mt Warehouse operation shall look as follows:

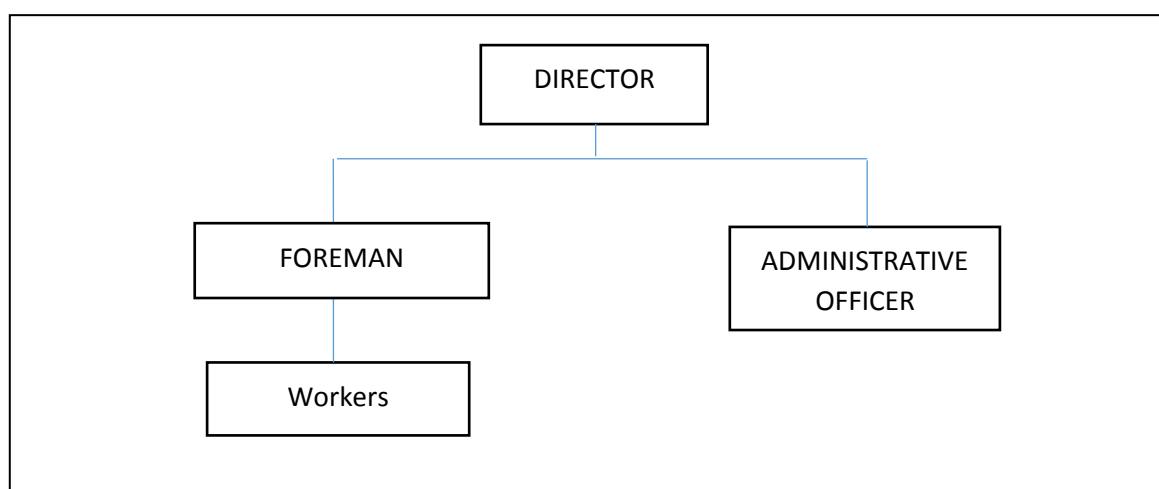


Figure 2: Organizational Structure of Wilphin Enterprise's 500Mt Warehouse Operation

Workers Information and Training

Management will ensure the effective dissemination of information to all workers. Training programmes will be regularly organized for the workers in collaboration with Technical Officers from the Bolgatanga Municipal Assembly's Department of Agriculture and Consultants on warehouse management and operations as well as environmental health and safety issues. These will include training for workers before they are engaged, formal in-service trainings and demonstrations at the warehouse. The Foreman will be trained on the environmental permit conditions and mitigation and management measures in this ESMP as well as provided with first aid training.

Management of Wilphin Enterprise are aware that providing adequate training for the workers and ensuring effective dissemination of information will contribute immensely towards environmental management through the judicious use of resources, appropriate disposal of wastes and the prevention of accidents that might cause injury to workers and pose risks to persons and the general environment.

7.2 Performance Monitoring and Institutional Reporting Requirements

Environmental and Social Monitoring Programmes

Monitoring programmes will be developed based on the monitoring plan in **Table 4** for relevant environmental and social parameters. The monitoring programme shall also be in accordance to the directives of the EPA in the environmental permit conditions.

Annual Environmental and Safety Audit and Review

Annual environmental, health and safety audits and reviews will be conducted to assess the performance of the environmental, health and safety management plan being implemented. The monitoring programme will form the basis for effective auditing and reviews. The outcome of the annual audits and reviews will underpin the periodic update of the Preliminary Environmental and Social Management Plan (PESMP) of the proposed project.

Annual Environmental Report and ESMP

Annual Environmental Reports will be prepared and submitted to EPA annually in fulfillment of section 25 of LI 165. ESMP will also be prepared and submitted to EPA 18 months after commencement of the project and subsequently every 3 years, or as may be directed by the EPA in the permit conditions.

Factories Inspectorate Department and Ghana National Fire Service (GNFS)

In accordance with the Factories, Offices and Shops Act of 1970 (Act 328), Wilphin Enterprise will register the project with the Chief Inspector of Factories Inspectorate Division, display the abstract of the Factories, Offices and Shop Act at the warehouse, and notify the Chief Inspector of any accidents, dangerous occurrences and industrial diseases. The certificate of registration will be renewed annually.

Also, a fire certificate will be obtained for the project from the GNFS in line with Fire Precautions Regulations LI 1724 which will be renewed annually. Wilphin Enterprise will collaborate with the

GNFS on fire prevention and management and report all fire incidents at the project site to the GNFS.

Public Participation

Wilphin Enterprise acknowledges that its operations could have impacts (positive and negative) on the project community (Anateem) and will attach great importance to public views and concerns of its operations. The Company will therefore open its doors to any views and concerns either directly from community leaders and members, or channeled through its workers. Any such views and concerns will be recorded.

Grievance Redress Mechanism

A grievance is any query, call for clarification, problems, and concerns raised by individuals or groups related to activities undertaken or processes applied by the project. Grievances can be an indication of growing stakeholder concerns and can escalate if not identified and resolved. The management of grievances is therefore a vital component of stakeholder management and ensuring the sustainability of a project. A Grievance Redress Mechanism (GRM) is therefore a system by which queries or clarifications about a project are responded to, problems that arise out of implementation are resolved and grievances are addressed efficiently and effectively. An effective and efficient GRM should have multiple avenues or channels for lodging complaints, transparency, promptness and timeliness of responses and clear procedures.

The Foreman of Wilphin Enterprise will be responsible for receiving grievances which may be channeled to him directly through face-to-face communication, phone calls, letters, e-mail, text messages, etc. Grievances may also be sent to the Foreman through the Administrative Officer or the workers at the warehouse. The Foreman shall have a log book for keeping records of all grievances received. Any grievance received from the public shall be treated confidentially and resolved in a transparent and fair manner.

The process of resolving grievances shall comprise the following tiers:

1. Management of Wilphin Enterprise;
2. Community Leaders;
3. District Assembly; and
4. Court of Law.

Many grievances are not anticipated to arise from the project implementation and it is expected that any unforeseen grievances may be resolved at the second tier (Community Leaders) in the worst case. The process of resolving grievances is summarised in **Figure 3**.

Awareness Creation

Management recognizes that the implementation of the ESMP can only be successful if all workers are made aware of its contents and see it as a collective responsibility to achieve its goals and objectives. Awareness creation meetings will be organized for all the workers to educate and sensitize them on environmental and health and safety issues arising from the warehouse operations and activities, including handling and packing of produce, waste management, and fire prevention and management.

Data Collection, Documentation and Archiving

Management will keep proper records on resource use and all environmental and worker health and safety issues. A form will be developed for the documentation of information, both in hard copy and in electronic form. The data to be gathered and documented include:

- Records of monitoring and the actions taken;
- Environmental permits received;
- Resource use (electricity consumption, water consumption, etc.);
- Quantities of waste generated;
- Accident/incident occurrence;
- Health records;
- Risk assessment forms;
- Public concerns/grievances received and actions taken; and
- Training programme each worker has undertaken.

Wilphin Enterprise will establish procedures to control and archive all documents for easy referencing, traceability and accessibility.

8.0 EMERGENCY PREPAREDNESS AND RESPONSE PLANS

8.1 Fire Emergency

Small fires

Small fires are put out quite safely. A simple firefighting procedure followed to put out a small fire is provided below:

- The first person to sight the fire must sound the fire alarm at the warehouse;
- Workers trained to use fire extinguishers (fire volunteers) are permitted to fight fire on site. All others must evacuate the warehouse;
- Tackle fire in its very early stages at the source;
- Always put your own and other people's safety first. Make sure you can escape if you need to and never let a fire block your exit;
- Never tackle a fire if it is from a position against the prevailing wind direction and if the source cannot be determined. Never tackle a fire if it is starting to spread or has spread to other items in the warehouse or if the warehouse is filling with smoke;
- If the situation is solved, investigate the reason for the fire and clean the place;
- Report to the Foreman and Director.

Large fires

These are fires that cannot be put out by the trained fire volunteers and the GNFS will have to be called to fight it. The evacuation procedures to follow include:

- The first person to sight the fire must sound the fire alarm at the warehouse;
- Evacuate the building and report at the ASSEMBLY POINT;
- Immediately call the GNFS and report to the Foreman/Director;
- Contact numbers of the Bolgatanga Municipal GNFS will be conspicuously displayed at the warehouse;
- The Foreman has to check on remaining workers and carry out a fast, calm and secured evacuation;
- A head count will be conducted to ensure workers are safe and present;
- If there have been any injuries, they will be conveyed to the nearest health facility;
- Keep records of any injuries and the fire event.

8.2 Medical or Accident

In the event of any accident or injury the procedures to follow include:

- If it is a minor accident/injury and the victim can move, he/she should report to the Foreman.
- The Foreman who is trained in administering first aid, will treat the injury.
- The Foreman will decide if the victim needs further treatment at the Medical Centre and if so will arrange together with the Director for the victim to be sent to the nearest health facility immediately.
- The Foreman together with the Director will investigate and take records of the accident/injury including the source and cause of the accident/injury.
- If the accident/injury is such that the victim cannot move by him/herself but can be moved, the workers present should assist him/her to the Foreman to administer first aid and arrange for the person to be sent to the nearest health facility immediately.

- If the accident/injury is such that the victim cannot be moved, the workers present should put him in a stable condition and immediately call the Foreman. The Foreman together with the Director will immediately arrange for medical staff from the nearest health facility to be brought to the warehouse to attend to the victim.
- All accidents and injury will be recorded by the Foreman.

8.3 Agrochemical Spill

Agrochemical spills involving spillages of stored fertilizers, pesticides and weedicides/herbicides while in storage may occur in the storage room of the warehouse. The procedures to follow include the following.

- If the spilled agrochemical is solid such as granulated fertilizer, quickly gather and collect the product using the appropriate PPE such as gloves and wash the area with a lot of water and disinfectant.
- If the spilled agrochemical is liquid, quickly contain the spillage using saw dust provided at the warehouse to prevent the spilled product from spreading. Collect the used saw dust, wash the surface with a lot of water and disinfectant and report to the Foreman who will decide the appropriate disposal of the used saw dust together with the Director.
- If the spilled product gets into contact with any part of the body, quickly wash the body part with a lot of clean running water and immediately report to the Foreman.

9.0 CONCLUSION

Wilphin Enterprise acknowledges that its activities and operations do impact on the environment, workers, customers and the public and is very mindful of its obligations towards the protection of the environment and ensure the health and safety of the workers, customers and the community.

The company will continue to invest in ensuring a safe environment that will assure sustainable farming operations and will also continue to undertake its activities and operations in accordance with Ghanaian laws as well as International best practices governing development activities of this nature.

The environmental and health and safety action plans outlined in this ESMP as well as emergency response plans will be implemented and monitored to ensure effective mitigation and management of the project impacts. The implementation of the proposed mitigation measures for the Warehouse Construction Phase will cost Wilphin Enterprise about **GH¢9,500**, while the implementation of the mitigation and monitoring measures for the Warehouse Operations and Maintenance Phase will cost Farmer Training Centre about **GH¢35,000** annually.

However, the benefits of a sound environmental, social, health and safety management will offset the costs. The benefits include high productivity, improved health of workers, reduction in medical bills, elimination or reduction of possible legal issues, projection of good public image and better relationship with regulatory agencies.

ANNEX: MONITORING CHECKLIST

No.	Impact issue/component	Monitoring Parameters/ Indicators	Monitoring Site	Frequency	Responsibility (Implementation/ Supervision)
ENVIRONMENTAL MONITORING					
1.	Waste Management	-Availability and use of bins -Records on frequency and location of waste disposal site of domestic and construction waste. -Records on agrochemical containers collected and returned to suppliers for recycling/proper disposal	-Warehouse	Continuous	Foreman/ Farm Manager
2.	Environmental compliance	-Annual environmental, health and safety audits -Preparation of Annual Environmental Reports (in line with LI 1652)	-	Annually	Consultants/ Farm Manager
		-Preparation of Environmental and Social Management Plan (in line with LI 1652)		18 months after receiving permit and subsequently every 3 years	
		-EPA permit well displayed on premise		Continuously displayed	
SOCIAL/ECONOMIC/SAFETY MONITORING					
1.	Occupational/ Public health and safety	-Availability and proper use of PPEs -Adherence to health and safety procedures -Records on frequency, type and source of illness/accident/injury -Records on trainings received on health and safety	-Warehouse	Continuous	Foreman/ Farm Manager
2.	Fire risks	-Availability of firefighting equipment at warehouse (smoke detectors, fire alarm, fire extinguishers) -Maintenance records of machinery and equipment, including firefighting equipment -Training records on fire prevention and control -Hanging/loose electrical wires -Records on fire occurrence	-Warehouse	Continuous	Foreman/ Farm Manager

No.	Impact issue/component	Monitoring Parameters/ Indicators	Monitoring Site	Frequency	Responsibility (Implementation/ Supervision)
3.	Pest/rodent infestation and contamination of produce	-Cleaning roster -Inspection records -Chemical control/ Fumigation records -Maintenance records -Records on contaminated produce	-Warehouse	Continuous	Foreman/ Farm Manager
4.	Post-harvest losses	-Adequate ventilation at warehouse -Condition of warehouse environment (cleanliness, weed growth, etc.) -Arrangement of produce in the warehouse -Physical condition of produce -Records on produce (including records on quantity stored and records on infested produce) -Chemical control/ fumigation records	-Warehouse	Continuous	Foreman/ Farm Manager
5.	Public complaints/ Grievances	-Type and nature of complaints and concerns; -Complaint records (Record of grievance and number resolved/unresolved) -Management and Stakeholder Meetings	Project community	Continuous	Foreman/ Farm Manager
6.	Sustainability of farming venture	-Qualification of Farm Manager -Training records for workers -Pricing of produce compared to prevailing market prices -Records on sales -Records on resource consumption (such as utility bills, use of agrochemicals, etc.) -Maintenance records -Financial records	-Warehouse	Continuous	Foreman/ Farm Manager