

**GREATER ACCRA RESILIENT AND INTEGRATED DEVELOPMENT (GARID)
PROJECT**

**TERMS OF REFERENCE
FOR
CONSULTANCY SERVICES FOR ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT (ESIA) OF PROPOSED WASTE TRANSFER STATION AT SITE ON
GHANA ATOMIC ENERGY COMMISSION (GAEC) LAND, IN THE GA EAST
MUNICIPALITY.**

1.0 Introduction

Solid waste generation and management is one of the major challenges facing the local authorities and thwarting government efforts to make the city of Accra a beautiful and clean city. An aspect of the challenge is the collection and transfer of the waste to disposal sites. Solid waste collection and transfer in the Greater Accra Metropolitan Area (GAMA) is saddled with many challenges that hamper efficient and timely evacuation of solid waste from points of generation (homes, factories, markets, commercial areas, etc.). Some of the challenges are the long distances from the generation point to final dumping sites resulting in high haulage cost and operational difficulties due to heavy daytime vehicular traffic.

A downstream effect of the operational difficulties is irregular and inadequate evacuation of waste from homes, markets, factories and industrial areas leading to over-spillage of refuse causing unsanitary conditions at these sites. This overflow of refuse containers is a major source of garbage ending up in open drains, water courses and streams. In addition, some households in avoiding pay-as-you dump at container sites “hoard” refuse only to dump into drains during rains. Smaller waste collection vehicles (including hand- drawn carts, Motorized Tricycles and Borla taxis) used for pre-collection, typically dump the contents in open drains and other unauthorized places. The flooding disaster of June 3, 2015 was exacerbated by the blockage of drains by non-degradable solid waste materials and silt.

Research shows that direct haulage of waste generated in the Accra Metropolitan Area is uneconomical for travel distance in excess of 17.7 km and 25.9 km for the skip trucks and compaction trucks respectively (AMA, 2013). The increased travel distance is a disincentive to some of the smaller waste collection vehicle operators who dump their contents at unauthorized places.

It is against this background that the Ministry of Sanitation and Water Resources (MSWR) is proposing to build and operate a Waste Transfer Station (WTS) on a site on the property of GAEC, in the Ga East Municipality. The proposed transfer station will serve as receiving facility for domestic and commercial waste from neighborhoods within GAMA for onward transportation to final disposal sites. The project will therefore eliminate the bottleneck of waste collection trucks travelling long distances to dump their refuse, and the dumping of refuse in open drains and unauthorized places by small waste collection vehicles leading to the associated perennial flooding challenges.

The MSWR, intends to engage the services of a qualified and experienced consulting firm (hereinafter referred to as “the Consultant”) to carry out an ESIA of the proposed WTS. The

purpose of this terms of reference (TOR) is to provide the terms and conditions to guide the Consultant in the conduct of the ESIA.

2.0 Overview of the GARID Project

The Government of Ghana has secured funding from the World Bank to finance the Greater Accra Resilient and Integrated Development (GARID) Project. The Bank's support would be financed by an IDA Credit of US\$200 million. The development objective of the project is to strengthen flood and solid waste management, and provision of public services to targeted vulnerable communities in Odaw basin in the Greater Accra Region. The project involves a phased approach to improvement of drainage and solid waste management in the Odaw basin, focusing on improving the resilience and living conditions of targeted low-income urban dwellers. Specifically, the project will support the following components:

Component 1: Climate Resilient Drainage and Flood Mitigation Measures

This component, led by Ministry of Works and Housing (MWH), includes structural improvements of drainage systems, and flood water management through upstream water conservation, development of flood retention areas, as well as improving early flood warning and response capacity in Greater Accra Region. Specific activities to be implemented under this component include:

- Improvements in urban drainage and flood management in Odaw drainage basin through dredging and de-silting of the Odaw channel;
- Improvement of drainage systems (i.e. widening of Odaw river mouth; lining of major drainage channels; and construction of selected secondary channels in the Accra Metropolitan Area);
- Development of flood water retention areas; and
- Improvements in flood response systems through better infrastructure for flood forecasting and warning systems.

Component 2: Solid Waste Management Capacity Improvements

Activities under component 2, which is under the purview of MSWR, are community-focused, targeting areas that have been selected for investment in drainage and sanitation. Sub-activities under this component include:

- Improving community-level solid waste management through provision of waste bins and skips and technical services for solid waste collection;
- Community mobilization and awareness raising;
- The application of a results-based incentive approach to enhance waste management and good sanitation practices; and
- Improving solid waste management capacity in Greater Accra by identifying, assessing and improving waste recycling, treatment and disposal facilities.

Component 3: Participatory Upgrading of Targeted Flood Prone Low-income Communities, and Local Government Support

This component is implemented by the MWH and relevant Metropolitan, Municipal and District Assemblies (MMDAs) under the technical guidance of the Project Coordinating Unit (PCU). The key activity will be to: identify highly flood-prone informal settlements and Zongos to benefit from participatory community upgrading; i.e., basic infrastructure upgrade and services as informed by geospatial and social vulnerability diagnostics; undertake Community engagement

and technical advisory services; and facilitate Metropolitan Governance and Operation and Maintenance Improvements, which includes the following;

- ✓ Establishing and institutionalizing inter-jurisdictional coordination among local governments
- ✓ Assessing and improving O&M of drainage infrastructure at the local level
- ✓ Providing annual local capacity support grants as incentives to the participating local governments.

Component 4: Project Management and Planning

This component supports project management activities of implementing entities and preparatory studies for subsequent phases of the GARID project.

Specifically, this component will support activities including:

- Technical assistance, equipment, training and operating costs for the Project Coordination Unit (PCU), Project Implementation Units (PIUs) in implementing agencies, and Municipal Planning and Coordination Unit (MPCUs) in MMAs;
- Establishing and implementing a comprehensive monitoring and evaluation (M&E) system;
- Training of the implementing agencies in environmental and social management, grievance redressal, procurement and financial management; and
- Provide funds to undertake feasibility studies and prepare detailed designs for implementation and other studies identified and agreed during implementation.

Component 5: Contingent Emergency Response Component (CERC)

The CERC was designed to allow for the rapid reallocation of funding between project components, following an emergency. Following the outbreak of COVID-19 pandemic, the government and the World Bank duly activated CERC and allocated some funds from GARID towards strengthening the government's response to the disease in the country.

3.0 Description of the Proposed WTS

Project Location and land size

The proposed Waste Transfer Station will be located on GAEC land in the Ga East Municipality. MSWR has a memorandum of understanding (MoU) with the GAEC to collaborate on waste management, including research, through the development and operation of the WTS.

The proposed project site is a property of the GAEC. The size of the proposed site is 9.82 acres (3.97 ha), as indicated on the site plan (**Figure 1**) The proposed project site is largely flat and can be accessed from the Haatso – Kwabenya road. **Figure 2** shows the location of the proposed project site.

The proposed project site shares boundaries with the Haatso-Kwabenya road, some residential properties and the Onyasia stream. The site is currently a farmland for the cultivation of vegetables by some members of the BNARI Land Vegetable Growers and Marketing Cooperative Society.

PLAN OF LAND
 for: **MINISTRY OF SANITATION & WATER RESOURCES,**
GREATER ACCRA RESILIENT
&
INTEGRATED DEVELOPMENT (GARID) PROJECT
 — *Shewn Edged Pink* —

Scale 1 : 2500

Area = 9.82 Acres (3.97 Ha.)

LOCALITY
 ATOMIC (KWABENYA)

DISTRICT
 GA EAST

REGION
 GREATER ACCRA

1185500

1186000

1186500



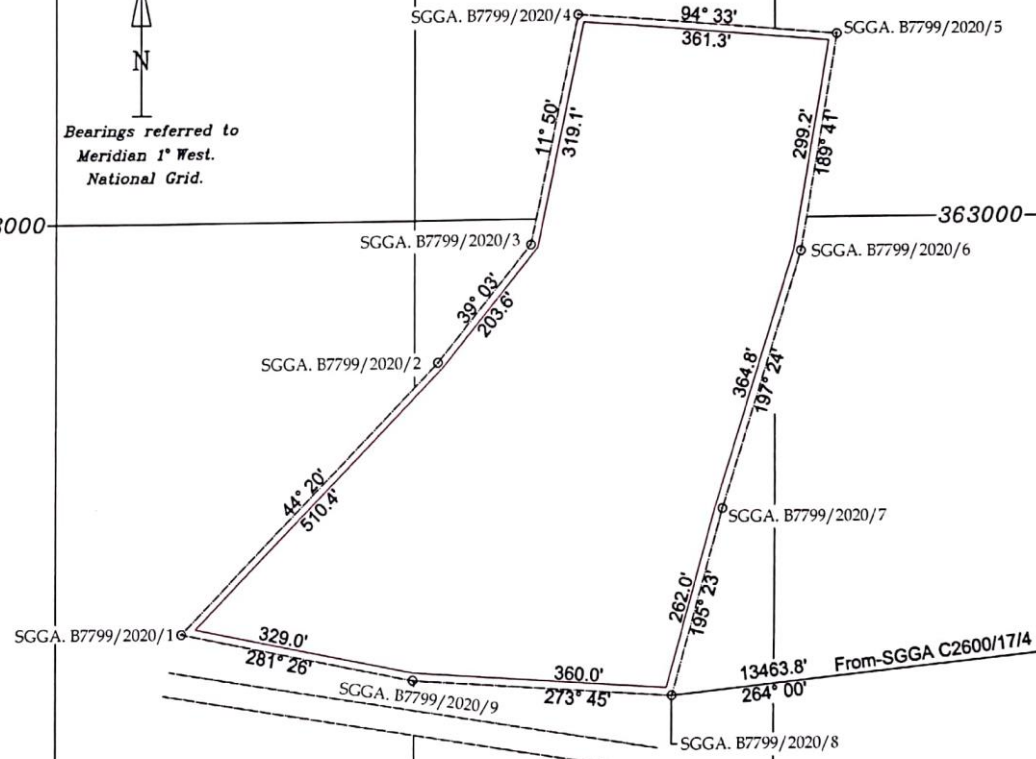
Bearings referred to
 Meridian 1° West.
 National Grid.

363000

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BEACON INDEX

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SGGA. B7799/2020/9	362376.91	1185998.44
SGGA. B7799/2020/1	362442.14	1268805.55
SGGA. B7799/2020/2	362807.22	1186032.75
SGGA. B7799/2020/3	362965.35	1186161.00
SGGA. B7799/2020/4	363277.64	1186226.42
SGGA. B7799/2020/5	363249.02	1186586.61

Figure 2: Goggle Earth Map showing location of the proposed WTS Site



Design and Capacity of the Waste Transfer Station

A state-of-the-art transfer station will be designed and constructed. The WTS will serve the GAEC and the surrounding municipalities within a 5-7km radius (which will include the Ga East, Adentan, La Nkwatanang Madina and Ayawaso West Municipalities). The transfer station will not receive industrial/hazardous waste. Domestic waste will be collected and hauled to the WTS by private waste collection companies from the municipalities.

The capacity of the transfer station will be between 600 and 750 tons per day. The design capacity of the transfer station was primarily influenced by the receiving rate, load-out rate and storage amount. The WTS will have a flow-through capacity of 400 tons per day, which is equivalent to waste generation of the service area, and a storage capacity of 200 tons per day. As waste is generally not delivered to a transfer station at a uniform rate throughout the day, the storage space permits the station to handle peak delivery rates that exceed the rate that transfer vehicles can be loaded. The storage will also increase the reliability of the facility by mitigating the impacts of equipment failures or other problems.

The design of the WTS will be done by a specialized engineering firm. The detailed designs will be based on Material Flow Analysis of the wastes coming in and going out of the WTS on a daily basis. The GAEC will be involved through review and comments on draft design and finalization of the design process.

Key Components of the Waste Transfer Station

The key components of the WTS project are as follows:

- a) Construction of waste transfer station main buildings and foundation including unloading, sorting, storage and loading levels, hopper and trailer;
- b) Construction of gate control buildings and foundation including works to house weigh bridge equipment for incoming collection trucks and outgoing transfer trucks;
- c) Construction of support buildings and foundation including offices for supervisors and support staff, room for training, canteen, on-site first aid box, worker accommodations for washing/changing/resting;
- d) Construction of drainage systems, leachate and waste water treatment and sanitary systems;
- e) Provision of fire protection systems, including water supply and extinguishers to put out fires;
- f) Construction of asphalt access roads from the main roads/highway nearest the transfer stations to the reception area within the site including on-off ramps to meet highway design standards for large capacity transfer trucks. The access road will be a dedicated access road for the WTS and will be from the Haatso-Kwabanya road;
- g) Site roads layout that will ensure the least number of crossover or intersection points of vehicles with different functionalities. Vehicle flows are to be in the same general direction;
- h) Construction of site roads and parking areas for loading and turning of large capacity transfer trucks;
- i) Construction of workshops, including bays for repair and maintenance of transfer trucks;
- j) Washing and cleansing facilities for transfer trucks and collection trucks; and
- k) Other ancillary works.

Waste Transfer Station Layout

The main sections/components of the WTS are as follows:

- Main WTS infrastructure, including:
 - Weighing bridges;

- Ramp in and ramp out;
- Tipping area;
- Loading area (with containers to receive load);
- Transfer area.
- Office complex with conferencing facilities;
- Parking area;
- Workshop (for repair and maintenance of transfer trucks);
- Washing area (for transfer and collection trucks); and
- Entrance and exit points with gate control

Figure 3 shows a sample waste transfer station.



Figure 3: Sample of waste transfer station

Operation of the Waste Transfer Station

The operation of the WTS is expected to be handled by the private sector. An overall management team with relevant stakeholders will oversee the operations of the facility.

The processes to be undertaken at the WTS will include:

- Transfer of residual waste to final disposal sites; and
- Any other activities which may be proposed in the future which will be subject to prior approval by the Ghana EPA and the GAEC.

4. Objective of the ESIA Assignment

The construction, operation and decommissioning of the proposed WTS is likely to have environmental and social impacts; it is therefore mandatory for an Environmental and Social Impact Assessment (ESIA) to be carried out in compliance with Environmental Assessment Regulations 1999 (LI 1652) and the World Bank Safeguard Policy on Environmental Assessment (OP4.01).

The main objective of this assignment is to undertake an ESIA of the proposed WTS and produce an Environmental and Social Impact Statement (ESIS). The ESIA will provide decision makers at the MSWR, EPA and the World Bank with sufficient information to determine, on environmental and social grounds, the acceptance, modification or rejection of the proposed project for authorization, financing and implementation.

The MSWR also intends to hire the services of another consultant to undertake detailed engineering design of the WTS. It will be essential for the Consultants for the ESIA and the engineering design to liaise with each other to ensure that the ESIA is informed by the technical engineering design and vice versa. There will therefore be the need for close collaboration and regular information flow between the ESIA and the engineering design studies.

The ultimate aim is to integrate environmental and social considerations into the design and provide guidance to sustainable operation and safe decommissioning of the WTS.

Specific objectives of the assignment are to:

- a. Identify and assess potential environmental and social impacts that are likely to emanate from the construction, operation and decommissioning of the WTS;
- b. Recommend feasible and cost-effective measures and processes to respectively mitigate or enhance potential adverse and positive environmental and social impacts that could emanate from construction, operation and decommissioning of the WTS;
- c. Prepare an Environmental and Social Management and Monitoring Plan (ESMMP) for mitigating the potential environmental and social impacts (including Gender-based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual (SH) Harassment) of the proposed interventions and for monitoring the effectiveness of the mitigation measures, and
- d. Integrate environmental and social considerations into the technical engineering designs of the WTS and inform the implementation of sustainable measures during the construction, operation and decommissioning of the WTS.

i. Scope of Service

The environmental and social impact assessment assignment shall be carried out in two phases – Phase 1: Scoping Study and Phase 2: Environmental and Social Impact Assessment.

i. Registration of the proposed project with EPA

Prior to the start of phase 1 of the study, the Consultant will work with the MSWR to facilitate the registration of the proposed WTS by filling and submitting an Environmental Assessment Registration Form to EPA. This will pave way and begin formal engagement with the EPA on the environmental permitting process.

ii. Scoping Study

The Consultant will undertake a scoping study of the proposed WTS to define the scope of the ESIA (under guidance and direction provided by EPA following its review of the environmental assessment registration form submitted and screening of site visit). The scoping study will identify and categorize the significant environmental and social risks and impacts that need to be addressed in the ESIA. In identifying the significant issues, the Consultant will take cognizance of the environment/context of the proposed WTS, including the landscape, compatibility with adjoining land uses, current and future planned developments, as well as economic and other human activities. Scoping will determine the suitability of the site for the proposed WTS, identify possible challenges and modifications to the proposed project.

The Consultant will list field studies that will be conducted during the ESIA to establish the baseline biophysical and human environments and to aid in the identification and assessment of potential environmental and social impacts (including GBV, SEA and SH).

A key activity in ESIA is the identification and consultation of stakeholders, which will be done at least twice during ESIA preparation - once during the scoping phase and another upon completion of the draft EIA/SIA documents. The Consultant will develop a Stakeholder Engagement Plan, taking cognizance of all national, World Bank and World Health Organization (WHO) COVID-19 prevention and management protocols, to guide a comprehensive consultation and engagement with stakeholders in the area of influence of the proposed WTS during the scoping study and the ESIA phase of the assignment. The Consultant will also prepare a record of stakeholder interests, concerns, comments and suggestions in the form of an Issues and Response Report, which will accompany the **Scoping Report** and serve as a guide for continuous consultation during the ESIA.

In addition to the above, the Consultant shall pay attention to the identification of health and safety issues related to the construction, operation and decommissioning of the WTS. Again, the Consultant will identify any risk of land acquisition, involuntary resettlement, and loss of property and livelihoods resulting from construction of the WTS and scope the need for a (Abbreviated) Resettlement Action Plan (A)RAP).

The Consultant will identify the most relevant and significant environmental and social issues of concern with the aim to focus on them in the ESIA. Based on the outcomes of the scoping study, the Consultant will develop a detailed Terms of Reference (TOR) for the main ESIA to be undertaken in line with Ghana's Environmental Assessment Regulations, 1999 (LI 1652) and to satisfy the World Bank Safeguard Policy on Environmental Assessment. The TOR shall be incorporated in the Scoping Report that will be prepared at the end of the scoping study. The activities, schedule and budget for the ESIA study shall be incorporated in the scoping report.

iii. Environmental and Social Impact Assessment (ESIA)

The Terms of Reference for the ESIA as presented in the Scoping Report will guide the conduct of the ESIA. On approval of the Scoping report and agreement on the TOR and structure of the ESIA by the EPA, MSWR/GARID PCU, and the World Bank, the Consultant will start preparing the Environmental Impact Statement (EIS)

The specific tasks to be undertaken during the ESIA are presented below.

Task 1: Specialist Studies/Surveys

For purposes of establishing the baseline and predicting potential impacts, the Consultant may consider undertaking the following field investigations, among others:

- Hydrological Assessment: conduct hydrological assessments, including modelling, to:
 - ✓ determine the potential impacts of the construction, operation and decommissioning of the WTS on the nearby Onyasia stream;
 - ✓ determine the potential impacts of the construction, operation and decommissioning of the WTS on groundwater resources, and
 - ✓ determine an appropriate and adequate buffer zone to prevent flooding and to mitigate impacts from dust, odour, noise, vectors on the surrounding residences, sensitive locations and the community due to the construction and operation of the WTS.
- Geophysical Assessment: Conduct geophysical investigations to detect any sub-surface geological structures such as fracture zones and faults that may exist in the bedrock, which may compromise the stability of the site;
- Air quality assessment: to establish the baseline ambient air quality and predict the public health and safety implications of air quality (dust, PM₁₀, odour) on the site. The baseline assessment would include the review of available meteorological data, including wind profile. The potential impact of emissions from the operation of the WTS on the surrounding environment would be evaluated through dispersion modelling;
- Noise Impact Assessment: conduct noise impact assessment to estimate any potential noise impact from the construction and operation of the WTS on the existing ambient noise condition in the surrounding area of the proposed site, and
- Traffic Impact Study: conduct analysis of the impact of the movement of haulage trucks on access and traffic flow along haulage routes as they convey waste from identified collection points to the WTS and from the WTS to the landfill site at Ayidan in the Ga South Municipality. The study will identify routes in the catchment area of the WTS that are cost effective and would result in minimal traffic disruptions. Also, the study will propose roles and responsibilities for the management of potential environmental and social risks of waste transport along the haulage routes.

Task 2: Description of the Proposed WTS

The Consultant will liaise with MSWR for information/data to present a detailed description of the proposed WTS. The project description would cover the construction and operation and final decommissioning of the waste transfer station and the associated infrastructure. The following technical information shall be included:

- site location alternatives considered,
- size, technologies and capacity of the proposed project, including the transfer station operations and all associated infrastructure,
- adjoining land uses at the project site such as communities and demographic characteristics, residential and other land uses, and existing infrastructure;
- engineering designs of the WTS including site layout, access roads, drainage facilities, receiving facilities, leachate management facilities and monitoring systems as well as buffer zones,
- engineering designs of site roads layout to limit points of conflict in the movement of vehicles with different functionality;

- construction schedules, including scheduling of site preparation, construction of various components of the station and road construction or improvement works,
- plant operations and plant decommissioning activities (required manpower, opportunities for local labor, etc.),
- materials flows and emergency situation buffering,
- waste transfer technology or principle e.g. direct dumping or tipping floor, etc.
- worker and public health and safety, including COVID-19 prevention and management protocols,
- emergency preparation and response (including community response and notification)
- clean-up activities;
- staffing and support, and worker facilities and services, including maintenance and periodic replacement requirements.

Maps are required at appropriate scales to show project site, adjoining land uses and surrounding areas likely to be impacted (areas of influence-direct and indirect). These maps should include topographic contours as well as locations of communities, surface waters, roads, and administrative boundaries.

Task 3: Review of Legal and Institutional Framework

The Consultant will review relevant policies, legislation, regulations, and institutional frameworks which are applicable to (or have implications for) waste management in general and WTS in particular. The Consultant will also review the World Bank's Environmental and Social Sustainability policies which apply to the project. The Consultant will discuss the legislation and regulations that have informed the ESIA, including the environmental assessment and permitting process. It is important that the Consultant discusses the applicability of existing standards/guidelines on ambient air quality, ambient noise, solid waste disposal and leachate to the project.

The Consultant should also provide a gap analysis of the key differences between Ghana legislation and relevant World Bank Group Environmental, Health, and Safety Guidelines.

Task 4: Baseline Biophysical and Human Environments

The Consultant will collect as much primary physical and biological environmental and socio-economic baseline data/information as relevant to the assessment, supplementing this with available secondary data as necessary. It is important that the Area of Influence (AoI) of the proposed activity is well defined. The environmental description should be concise and focused on those environmental and social sectors where potential impacts of the proposed WTS can be expected. The information should be presented in illustrative maps at an appropriate scale.

The environmental baseline study would include a description of the current state of the environment at the site and in the AoI, focusing on those aspects that can be influenced by the construction, operation and decommissioning of the WTS, including:

- Water (underground and surface) resources and quality, including establishing the presence of wells in the project area and their locations;
- Climate and meteorology
- Topography;

- Geology and Soils;
- Biodiversity (flora and fauna);
- Existing sources of emissions and noise, and
- Storm water drainage channels.
- Vectors (rats, mice, cockroaches and insect) in the area

The baseline socioeconomic characteristics will include:

- Communities and population characteristics;
- Land uses;
- Economic activities,
- Infrastructure and facilities;
- Availability of bulk engineering services/utilities;
- Waste management facilities, and
- Planned future developments (that could affect or be affected by the WTS).

The list above is indicative of baseline features and the Consultant is expected to capture additional information that will help in the identification, assessment and mitigation of the potential impacts.

Task 5: Analysis of Alternatives

The Consultant will examine in detail a reasonable range of alternatives in the course of exploring options for the construction, operation and decommissioning of the WTS and identify other alternatives which would achieve the same project objectives. The alternatives should include the “No Project” Alternative, i.e. the alternative of not constructing the WTS, in order to demonstrate the environmental and social implication of not operating the WTS. The other alternatives should be assessed in terms of potential environmental and social impacts. This section will then further describe how the project impacts compare to those of the identified alternatives and will be concluded with an assessment of whether findings from this comparison could improve or, in any other manner, inform the development of the project.

Task 6: Stakeholder Consultation and Engagement

The Consultant will build on the consultation and engagement activities and outcomes from the scoping phase of the assignment with the aim to engaging comprehensively with stakeholders. The SEP prepared at the scoping phase will be implemented and all engagement activities fully documented. The Consultant will pay special attention to engaging with and soliciting the concerns and views of the authorities of GAEC, the Ga East Municipal Assembly, the communities and potential project-affected-persons. Based on the outcomes of the consultations, the Consultant will update the Issues and Responses Report.

Additionally, the Consultant will:

- i. Develop a disclosure plan with timetable of events and activities (what is to be disclosed, how, where, when and for how long)

- ii. Be responsible for organization of public consultations on the ESIA. Public consultation and communication will be undertaken based on national requirements and those of the World Bank. The consultation process will include standard record keeping for each meeting: records of the agenda, signed lists of participants, a summary of the issues discussed and copies of materials provided to the participants.
- iii. Will support the MSWR in the public disclosure of the Final ESIA report.
- iv. Based on the outcomes of consultations, develop a Grievance Redress Mechanism so that the project would have an effective procedure in place to resolve concerns promptly during the construction and operational phases.

Task 7: Identification and Assessment of Potential Impacts

The Consultant will identify and assess potential environmental and social impacts of the construction, operation and decommissioning of the WTS. Significant potential environmental and social impacts (direct and indirect) must be identified, making use of impact identification methodologies proposed in the scoping study. Impact identification should take into consideration factors such as the ecological sensitivity of the site, the pressures likely to result from the construction and operation of the WTS, the expectations or concerns of stakeholders, and the applicable national and World Bank legislative framework.

The Consultant shall give due consideration to the identification of impacts relating to, among others:

- Soils (erosion and contamination);
- Surface water resources (quality and flow characteristics), including storm water, floods and climate change;
- Ground water resources (quality);
- Ambient air quality (odour, dust, PM₁₀, vehicular and equipment emissions, etc.);
- Ambient noise and vibrations;
- Land uses;
- Economic activities;
- Infrastructure and utilities;
- Fire outbreaks;
- Sanitation and solid waste;
- Leachate management;
- Traffic (Traffic disruption and risk of accidents at WTS site and along haulage routes);
- Contaminated runoff;
- Public health and safety (Breeding of disease vectors and risk of vector borne diseases);
- Impact on livelihood of informal waste collectors
- Occupational health and safety, and
- Labour influx and Gender relations (including GBV, SEA and SH).

The environmental and social impacts will be categorized under construction, operational, and decommissioning phases of the WTS. The impacts will also be categorized as Direct, Indirect, Residual and Cumulative.

Task 8: Mitigation and Management Measures

The Consultant will propose measures aimed at avoiding, minimizing or mitigating the adverse impacts of the construction, operation and decommissioning of the WTS. Measures must also be proposed to enhance any positive impacts. These measures must be technically feasible, socially acceptable (i.e. they must take into account the views of the main stakeholders) and cost-effective. The mitigation and enhancement measures will be specifically tailored to the impacts in order to achieve the aim of avoiding or limiting the negative effects of the WTS.

Due to the size and location of the proposed site in a peri-urban setting, the Consultant will prepare “chance find” procedures for use in case any unanticipated archaeological, historical and sacred objects are encountered during site preparation works.

Task 9: Preparation of Environmental and Social Management and Monitoring Plan (ESMMP)

The Consultant will prepare an Environmental and Social Management and Monitoring Plan (ESMMP). The ESMMP will identify the actions needed to implement the mitigation and enhancement measures recommended by the ESIA, as well as environmental and social monitoring required during the construction, operational and decommissioning phases of the WTS. The ESMMP should clearly translate the recommended mitigation proposals from the ESIA into an operational plan.

The mitigation measures component of the ESMMP will present a table of all impacts for the construction, operational and decommissioning phases for all key project components. The matrix will include (i) significant potential impacts (ii) proposed mitigation measures and their proposed timing, (iii) the party responsible for implementing the mitigating measures and (iv) estimated budget of the proposed mitigation measures and allocation of financing responsibilities.

The consultant will prepare an environmental and social monitoring plan, which will include: (a) a specific description of monitoring measures required, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, and definition of thresholds that will signal the need for corrective actions in line with the standards which are applicable; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

The monitoring plan will also consist of costs estimates of the proposed monitoring measures, the key institutions that are proposed to be responsible to undertake the monitoring as well as the oversight responsibilities for correct implementation of the monitoring function. The monitoring plan will be based on applicable EPA requirements and WB policies.

The monitoring plan will enable the EPA, World Bank, MSWR and PCU to confirm the accuracy of the impact assessment and the effectiveness of the mitigation measures contained in the ESIS.

To support the ESMMP, the Consultant will: a) identify environmental and social personnel, resources and training requirement for successful construction and operation of the WTS; b) liaise with MSWR to ensure that these requirements are included as part of the training of the implementing agencies in environmental and social management under Component 4: (Project Management and Planning) of the overall Project; and c) recommend and provide, as annexes,

outlines of related management plans that will have to be prepared and implemented by the project contractor(s) and manager(s) during the construction phase and operational phases of the WTS respectively. The plans include:

- Construction Environmental and Social Management Plan;
- Leachate Management Plan;
- Air Quality/Odour Management Plan;
- Stormwater Management Plan (including potential flood management);
- Traffic Management Plan;
- Noise Management Plan;
- Vector Management Plan;
- Public Health and Safety Management Plan, and
- Occupational Health and Safety Plan.

Task 10: Decommissioning and Closure Plan

The Consultant will prepare a Decommissioning and Closure Plan to serve as a guide for the formal closure of the WTS and rehabilitation of the site. The plan will describe a range of actions necessary to restore the site as close as possible to the original conditions and to the benefit of GAEC and other land users.

ii. Deliverables

The following reports shall be prepared and presented by the Consultant to MSWR through the PCU:

i. Inception Report

The Inception Report will essentially be a report on, among others:

- Activities undertaken since the signing of contract for ESIA preparation;
- Preliminary baseline data/findings at the project site and its environs;
- Project documents reviewed and any additional literature required for the study;
- Stakeholders identified, meetings held and the outcomes, and
- A detailed work plan and methodology for the assignment.

The Consultant will submit three (3) hard copies and an electronic copy (in Word and pdf) of the Inception Report within **two (2) weeks** from the Commencement Date of the contract. The Inception Report will be reviewed by the MSWR, PCU and the World Bank's Safeguard Specialists within one (1) week of submission.

ii. Scoping Report

The Consultant will prepare a draft Scoping Report containing the findings of the environmental and social scoping study. The outline for the Scoping Report, with the TOR for the ESIA, as provided by EPA, is presented in Annex 1, as a guide. The Scoping Report will be submitted to the EPA, MSWR, PCU and World Bank for review and agreement on the TOR for the ESIA.

The consultant shall submit eight (8) hard copies and an electronic copy of a draft Scoping Report (in MS Word and pdf) to MSWR within **six (6) weeks** from the commencement date of the contract, i.e. **4 weeks** after submission of the Inception Report.

A final scoping report will be submitted by the Consultant which will take into account the review comments from the EPA, MSWR, PCU and the World Bank. The final scoping report shall be submitted to the MSWR not later than one (1) week after receipt of review comments.

iii. Draft Environmental and Social Impact Statement (ESIS)

The Consultant shall prepare and submit ten (10) hard copies and an electronic copy (in MS Word and pdf) of the draft ESIS to MSWR and PCU, within **six (6) weeks** after MSWR/PCU provides the Consultant with a compilation of review comments on the Scoping Report. The draft ESIS will be informed by the guidance presented in annex 2 and will include, among others, impacts assessment, issues and responses, mitigation and enhancement measures, and an ESMMP. The draft ESIS will be reviewed by the EPA, MSWR, PCU and the World Bank.

iv. Final Environmental and Social Impact Statement (ESIS)

The main deliverable of this assignment will be a final ESIS on the proposed WTS to be located on GAEC's land. The Consultant will submit six (6) hard copies and an electronic copy (in MS Word and pdf) of the final ESIS to MSWR/PCU, within two (2) weeks after receipt of the compilation of review comments on the draft ESIS from the MSWR/PCU. MSWR/PCU shall ensure that copies of the Final ESIS are submitted to the World Bank for clearance and EPA for the requisite environmental permits for the proposed works.

The deliverables and time schedules are summarised in the table below:

	Reports	Time schedule	No. of copies of Report
1	Inception Report	To be submitted within 2 weeks from commencement date of contract	Three (3) hard copies and a soft copy
2	Scoping Report	To be submitted within 4 weeks after submission of the Inception Report	Eight (8) hard copies and a soft copy
3	Draft ESIS	To be submitted within 6 weeks from date of acceptance of the Scoping Report	Ten (10) hard copies and a soft copy
4	Final ESIS	To be submitted within 2 weeks after Consultant is provided with review comments on draft ESIS	Six (6) hard copies and a soft copy

iii. Required Expertise

The Consulting firm/Consultant must be legally registered as an environmental consulting firm. Other characteristics of the Consultant include:

- Must have been in the business of undertaking environmental and social impact assessment over a period of not less than 10 years;
- Should be registered with a relevant environmental regulatory institution;
- Must have past experience in undertaking ESIA of solid waste management and landfill projects, and
- Evidence of availability of technical and managerial capability.

The firm will field a team of specialists, as indicated below, under the leadership and supervision of a Lead Consultant. The CVs of the specialists should be included in the proposal.

i. Lead Consultant

The Lead Consultant must possess a postgraduate degree in Environmental Science/Engineering, Civil Engineering, Development Planning or in a related discipline. A post-graduate qualification in a relevant discipline will be an advantage. In addition, the lead consultant must:

- Be recognized by Ghana's EPA or an environmental regulatory/certification institution in the firm's country of operation as an ESIA Consultant;
- Demonstrate proven and documented working experience with Ghana's environmental assessment procedure and regulations and the World Bank's Safeguard Policies;
- Have a minimum of fifteen (15) years of relevant professional experience in undertaking ESIA;
- Have led the conduct of ESIA, including leading the preparation of ESIS, of, at least, 15 projects, 5 of which must be in solid waste/sanitation management projects;
- Be a member of a professional body or association of impact assessment practitioners;
- Have experience in working on Ghana government project(s), and
- Have proficiency in English (oral and written). Knowledge of a local language in the project area will be desirable.

ii. Social Development Specialist

The Social Development Specialist must have a postgraduate degree in Sociology, Social Science, Development Planning or a related discipline. The Social Development Specialist must also:

- Have, at least, ten (10) years of relevant experience in social impact assessments in urban settings, collection and analysis of socio-economic data, development of social management plans, land acquisition and involuntary resettlement, stakeholder engagement and community development projects, preferably with large scale projects;
- Have working knowledge of Ghana's environmental assessment regulations and procedures and the World Bank's Safeguard Policies;
- Have been involved in the conduct of ESIA, including preparation of ESIS, of, at least, 10 projects, 3 of which must be on solid waste/sanitation management projects;
- Have proficiency in English (oral and written). Knowledge of a local language in the project area will be desirable.

iii. Environmental Specialist/Ecologist

The Environmental Specialist/Ecologist must have a postgraduate degree in Environmental Science, Natural Resource Management, Ecology or related field. The Specialist must also:

- Have, at least, ten (10) years of relevant experience in environmental assessment, including collection and analysis of environmental data and identification and management of environmental impacts;
- Have working knowledge of Ghana's environmental assessment regulations and procedures and the World Bank's Safeguard Policies;
- Have been involved in the conduct of ESIA, including preparation of ESIS, of, at least, 10 projects, 3 of which must be on solid waste/sanitation management projects;

- Have proficiency in English (oral and written). Knowledge of a local language in the project area will be an added advantage.

iv. Solid Waste Management/Sanitation Specialist

The Solid Waste Management/Sanitation Specialist must have a degree in Civil Engineering, Sanitation Management or a related field. A post-graduate qualification in a relevant discipline will be an advantage. The Specialist must also:

- Have working experience of, at least, seven (7) years in the design and management of solid waste management facilities;
- Have working knowledge of Ghana's environmental assessment regulations and procedures and the World Bank's Safeguard Policies;
- Have been involved in the ESIA of, at least, 5 solid waste management projects;
- Have proficiency in English (oral and written). Knowledge of a local language in the project area will be an added advantage.

v. Health and Safety Specialist

The Health and Safety Specialist must have a degree in health and safety or a related field. A post-graduate qualification in a relevant discipline will be an advantage. The Specialist must also:

- Have working experience of, at least, 10 years in public and occupational health and safety;
- Have working knowledge of Ghana's environmental assessment regulations and procedures and the World Bank's Safeguard Policies;
- Have received NEBOSH Certification Training;
- Have been involved in the ESIA of, at least, 5 projects, 2 of which must be related to solid waste management/sanitation;
- Have proficiency in English (oral and written). Knowledge of a local language in the project area will be an added advantage.

vi. Other Support

In addition to the above personnel, the Consultant may require expertise in geotechnical engineering and geology (site investigations); land use planning (land use, aesthetics and topography), hydrogeology and hydrology (surface and ground water, leachate control), economics, financial analysis, legal and institutional specialist (organisations)

vii. Duration of Contract

The Contract will be for a period of 14 weeks over 10 man-months.

viii. Reporting relationship

The Consultant shall submit the Inception Report, draft and final Scoping Reports, draft ESIS and final ESIS under official cover letter to MSWR, attention to the GARID Project Coordinator, in a timely manner. The PCU will facilitate the submission of the reports to the MSWR, EPA, the World Bank and other relevant institutions for review.

ix. Client's Input

The MSWR and/or GARID PCU will provide the Consultant with the following:

- i. Any available documents on the proposed site, including site plan, layout plan, conceptual designs, etc.;
- ii. GARID Project, Environmental and Social Management Framework;
- iii. Facilitation of access to the proposed site and to the authorities of GAEC;
- iv. Facilitation of access to the Consultants preparing Feasibility Study and Engineering Design of the WTS;
- v. Facilitation of meetings with officials of MSWR and PCU, and
- vi. Technical support by GARID Project's Environmental and Social Safeguards Specialists, if necessary.

ANNEX 1: SCOPING REPORT OUTLINE

1. Introduction

- Project Background
- Purpose/objectives of the scoping
- Justification for the project
- The scoping process/methodology

2. Policy, Legal, Regulatory and Institutional Framework (relevant ones)

- Relevant policies (including Climate Change and Gender related policies, the GH-NDCs, etc.),
- Legislative and Regulatory Framework
- International Conventions and requirements (where applicable include: the SDGs, AU Agenda 2063, and the Paris Agreement etc.)
- Detail out how they relate to the project

3. Description of the Project

- Project location and adjoining land uses
- Key project components in terms of processes, raw materials, equipment, human resource requirements, etc
- Sub-project components
- Outline any climate change related features/components of the project
- Auxiliary components

4. Baseline (highlights on the affected environment in terms of project location and adjoining land uses)

- Bio-physical (including climate change related issues), socio-economic, cultural and institutional issues

5. Public Participation/Stakeholder Engagement

- Stakeholders Identified (categories)
- Approaches/tools/methods
- ✓ Public notices
- ✓ One-on-one
- ✓ Key persons interview
- ✓ Focus group discussions/interviews
- ✓ Emails
- ✓ Etc.
- Issues /concerns of stakeholders
- Issues-Response (Matrix)

6. Alternatives (based on sections 3, 4 and 5)

- Location
- Technology
- Raw materials
- Access
- Etc.

7. Key Issues for consideration in the EIS, including climate change related issues.

(focus on significant impacts)

8. Terms of Reference (ToR) for Environmental Impact Assessment

9. Annexes/Appendices

- This should include: Site and Block plans, maps, correspondences, MSDSs, evidence of consultations, etc.

TABLE OF CONTENT FOR ESIS

1.0 Introduction

- Background to the proposal
- Purpose and Objectives of the scoping and the ESIA
- Highlight issues identified in the scoping
 - Significant baseline information
 - Assess alternative
 - Identify impacts
 - Propose mitigation
 - Others

2.0 Overview and Approach to the Preparation of the ESIA

- Literature review
- Conduct of expert studies
- Public participation and engagement

3.0 Policy, Legal and Regulatory Requirements

- Relevant Policies (including Climate Change and Gender related policies, the GH-NDCs)
- Company's Corporate Environmental Policy should include sustainability issues particularly Climate Change and Gender related issues
- Legislative and Regulatory Framework that necessitates the ESIA
 - Act 490, LI 1652
 - Sector laws
- International Laws and Conventions requirements (where applicable include: the SDGs, AU Agenda 2063, and the Paris Agreement etc.)
- Detail out how the policies and regulations listed above relate to the project

4.0 Study Area and Boundaries

- Discuss the Area of Influence (AoI) of the project in terms of impacts

5.0 Alternatives to be considered

All the alternatives should take into account Climate Change Mitigation and Adaptation issues and must be environmentally sustainable. Where alternatives are not considered explain why.

- No project alternative
- Technology alternative
- Location alternative
- Management alternative
- Others

6.0 Public Participation/Involvement Approaches

- Steps, approaches/methods for engaging the public during the ESIA
- Additional or further engagements required
- Any feedback/Disclosure
 - Notices
 - Reviews

- Revisions
- Others

7.0 Specialist/Expert Studies and Approaches

- Discuss and list the technical and expert studies required during the ESIA and how these will be done
 - Air quality studies
 - Noise nuisance
 - Traffic impact studies
 - Geotechnical investigations
 - Climate Change Vulnerability Assessment /Climate Trend Analysis
 - Hydrological Studies
 - Others

8.0 Impact Identification and Evaluation,

The identification and evaluation of impact exercise should consider Climate Change and Gender related issues and concerns

- Discuss how impacts will be identified, assessed or evaluated and their significance
 - Direct impacts
 - Indirect impacts
 - Cumulative impacts
 - Their nature, intensity, reversible/irreversible, spatial extent, duration, probability, magnitude, etc.
- Dealing with uncertainties
- Proposed management and monitoring plan

NOTE: You can use impact assessment tables/Matrices

Mitigation

- Discuss how mitigation measures for all identified significant impacts will be presented in the EIS.
- The mitigation measures should address Climate Change and Gender related issues and concerns

Monitoring

- Provide an indication of how proposed mitigation measures would be monitored to track performance.
- Parameters that may affect Climate Change and Gender related issues must be critically monitored.

9.0 Information and Data to be Included in the EIA Report

- Other information, data and reports to be included in the EIS, mainly as attachments. Could be Public Participation (PP) report, air quality report, correspondences, etc.

ANNEX 2: GUIDELINES FOR THE PREPARATION OF ENVIRONMENTAL AND SOCIAL IMPACT STATEMENT (ESIS)

COVER PAGE

Name of Company/Proponent:

Title of Report:

Name of Consultant (s)

Month and year of submission

SIGNATURE PAGE

Leader Team of Consultant

Name: Signature

Acceptance and declaration by Proponent

Name Signature

The EIS should be presented under the following headings

- ❖ Non-Technical Executive summary
- ❖ Introduction
- ❖ Policy, Legislative and Administrative Requirements
- ❖ Description of proposal and alternatives
- ❖ Description of existing environment/baseline
- ❖ Stakeholder consultation
- ❖ Impacts identification and significance
- ❖ Mitigation and enhancement measures
- ❖ Provisional Environmental Management Plan
- ❖ Reclamation/Decommissioning
- ❖ Conclusion

Non-Technical Executive Summary

The Non-Technical Executive Summary should contain all aspects and findings of the Environmental Impact Study including the following:

- ❖ The scope, purpose and objectives of the project
- ❖ Brief project description
- ❖ The legal basis of the project
- ❖ Brief explanation of the methods by which information and data were obtained
- ❖ Brief on the baseline data
- ❖ Impacts identified and their mitigation
- ❖ Monitoring
- ❖ Any other critical matters

Chapter One (1): Introduction

This section should highlight the need for and aims of the proposal and alternatives. It should also include

- ❖ The purpose and objectives of the undertaking
- ❖ The aims of the environmental assessment and how those aims are to be achieved.
- ❖ Methods by which information and data were obtained

Chapter Two (2): Policy, Legislative and Regulatory Requirements

- ❖ Provide an overview of:

- Relevant Policies (including Climate Change and Gender related policies, the GH-NDCs, the SDGs, AU Agenda 2063 etc.),
 - Company's Corporate Environmental Policy should include sustainability issues particularly Climate Change and Gender related issues
 - Legislative and Regulatory Framework that necessitates the EIA
 - Act 490, LI 1652
 - Sector laws
 - International Laws and Conventions requirements (where applicable),
- Detail out how the policies and regulations listed above relate to the project

Chapter Three (3): Project Description and Alternatives

The following should be provided under this section

- ❖ The location (GPS coordinates), land take, design, size and scale of the development, components of the project, the nature and duration of constructional and operational activities with diagrams, plans, charts and/or maps
- ❖ Description of adjoining land uses and land use requirement
- ❖ Description of constructional activities (proposed works; source and quantities of materials)
- ❖ Description of the physical characteristics, scale and design, quantities of material needed during construction and operation, description of the production processes.
- ❖ Description of operational phase (processes or activities; scope; facilities and utility services required; all outputs (products and wastes)
- ❖ Description of the possible implication of the project on climate change and vice-versa¹
- ❖ Description of other development (off-site areas or facilities affected by the project)
- ❖ Numbers of workers involved with the project during both construction and operation
- ❖ The types and quantities of waste generation including emissions, heat/noise/radiation discharges, deposits and residuals (where applicable) and the rate at which these will be produced, are adequately estimated. Uncertainties are acknowledged and ranges or confidence limits given where possible.
- ❖ Alternative sites, processes, designs and operating conditions where these are practicable and available to the developer. The main socio-cultural, economic, institutional and environmental advantages of these should be discussed and the reasons for final choice given. All the alternatives should take into account Climate Change Mitigation and Adaptation issues and must be environmentally sustainable. Where alternatives are not considered, explain.

¹ The section should also capture other innovative technologies that address climate change such as the use of biogas technology, rain water harvesting etc.

Chapter Four (4): Description of Existing Environment/Baseline

This chapter should discuss the biophysical, socio-cultural, economic and institutional environment of the proposed undertaking (project) to include:

- ❖ The land area taken up by the development, its location clearly shown on a map and GPS coordinates provided
- ❖ Climatic and atmospheric conditions; (temperature, wind speed and direction, humidity, rainfall, air quality, sources of air pollution etc.);
- ❖ Climate zone (refer to the GMet Climate Zones classification) within which the project is located
- ❖ Geology: (soil characteristics, geologic hazards); hydrology (surface water, aquifers, watersheds, water quality etc.);
- ❖ Ecology: (flora and fauna, habitats, endangered species, environmental stresses);
- ❖ Land use/ landuse change: (agriculture, forests, industrial, commercial, residential), transportation routes such as roads, rail, water and air, utility corridors
- ❖ Noise levels
- ❖ Air quality including
- ❖ Potential sources of Greenhouse Gases (GHGs) where applicable
- ❖ Demography: (population composition and distribution, socio-economic conditions, cultural and ethnic diversity, population growth rate);
- ❖ Social services: (electricity, telecommunication, water supply, hospitals, etc.);
- ❖ Cultural heritage: (unique features of the area or its people; cemetery, fetish grove, festivals etc).

The following must be noted:

- ❖ It is important to note that only relevant considerations to the project should be discussed (parameters to the project should be considered).
- ❖ The methods and investigation undertaken for collection of baseline data should be provided.
- ❖ Existing data used should be well referenced

Chapter Five (5): Stakeholder consultation

This chapter should:

- ❖ Identify all relevant stakeholders pertaining to the sector and project.
- ❖ Outline concerns of the stakeholders
- ❖ Provide evidence and outcomes of the consultation

Chapter Six (6): Impacts Identification and Significance

- ❖ All key issues identified in the terms of reference (from the scoping report) should be included in the report.

- ❖ It is important to set impact boundaries (geographical area of influence) to limit the amount of information to be gathered and analysed.
- ❖ Identify potential impacts for all phases of the project (i.e. pre-construction, construction, operation and decommissioning)
- ❖ The identified Impacts should be presented based on the following categories/attributes: nature, duration, spatial extent, reversibility, direct and indirect impacts, short term and long term, positive or negative, cumulative, etc.
- ❖ Stakeholder (interested and affected) concerns should be accounted for in the identification of impacts
- ❖ Methodology for the identification of impacts should be well presented using the following (where applicable) matrices, checklists, expert opinion, modelling, GIS, Climate Change Vulnerability Assessment /Climate Trend Analysis among others.
- ❖ Climate change tools for profiling Climate Change Risk and emission foot prints as well as opportunities for building resilience and reducing emissions.
- ❖ Impacts should be analysed as the deviation from baseline conditions, i.e. the difference between environmental conditions expected if the development were not to proceed and those expected as a consequence of it; and sufficient data produced to support the analysis of the impact.
- ❖ Assess the significance of impacts using appropriate national and international quality standards where available.
- ❖ The methods used to analyse and predict the significance of impacts should be described

The impact significance identified should be based on the following:

- The extent of impact coverage, intensity in concentration in relation to assimilative capacity of the recipient medium,
- The exceedances of environmental guidelines, standards or thresholds,
- Non-compliance with land use policies and plans
- The effects on ecological sensitive areas and heritage resources
- The effects on community life styles, traditional land uses, and socio-cultural values

The assessment of significance should also be based on environmental guidelines, standards and thresholds, socio-cultural and economic values, health and safety, and ecological importance of the resource. The determination of significance must also take into consideration Climate Change issues.

Chapter Seven (7): Mitigation and enhancement measures

- ❖ The mitigation of all significant impacts should be considered and specific mitigation measures defined in practical terms (e.g. costs, equipment and technology needs, timing). The mitigation exercise should address Climate Change issues and concerns. Measures proposed for enhancement of all beneficial impacts should be provided in practical terms.

- ❖ Proposed ways of handling and/or treating wastes and residuals where applicable should be indicated, together with the routes and mode by which they will eventually be disposed of to the environment.
- ❖ The extent of the effectiveness of the mitigation measures should be presented and where the mitigation measure is uncertain or depends on assumptions about operating procedures, climatic conditions, etc data should be provided to justify the acceptance of these assumptions

Chapter Eight (8): Provisional Environmental Management Plan

- ❖ Comprehensive listing of the mitigation measures (actions) that the Project will implement at all phases should be provided in a proposed action plan, the action plan below gives an example:

Impact	Identified mitigation action	Actual action	Objective	Target	Budget	Time frame	Responsibility
Waste generation	Waste recycling	Installation of a waste recycling plant	To reduce the amount of waste landfilled	Recycle 80% of waste produced	GHS 60,000	Jan to June 20- -	Environmental Officer

- ❖ Environmental quality parameters that will be monitored to track how effectively actions and mitigation would be implemented should be presented in a tabulated monitoring plan. An example is given in the table below

Monitoring plan

No	What to monitor (parameter)	When to monitor (frequency)	How to monitor (methods)	Who monitors	Budget
1	Noise	Weekly	Noise meter	Production Manager	GHS 10,000

Chapter Nine (9): Conclusion

The general conclusions of the study should be presented in this chapter:

- ❖ Consideration should be based on the pillars of sustainability (economic viability, socio-cultural acceptability, institutional arrangements and the environmentally friendly or benign) amongst others.