ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT COMPREHENSIVE PROJECT REPORT FOR THE PROPOSED CONSTRUCTION AND INSTALLATION OF A MEDICAL WASTE TREATMENT INCINERATOR AT GARISSA COUNTY REFERRAL HOSPITAL

PSE 395/16

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January 2023
CERTIFICATION OF DOCUMENT
We, Devlink Resources Consultants, hereby approve that all information given here in this report is accurate and true to the best of our knowledge and understanding.

ENVIRONMENTAL AND SOCIAL IMPACT EXPERTS
This Environmental and Social Impact Assessment (ESIA) Project Report has been prepared by a team of Experts from Devlink Resources Consultants in accordance with the World Bank Environmental and Social Framework (ESF), World Bank Group (WBG) Environment Health and Safety (EHS) Guidelines and the Government of Kenya policies and regulations for Environmental and Social Assessments.

Devlink Resources Consultants (NEMA Registration Number 2355)
P. O. Box 76065 00508, Nairobi

Signature: ____________________________
DATE: 29/01/2023

For ESIA Experts

PRELIMINARY PROJECT DETAILS
Location of Project: Garissa County Referral Hospital, Located along Kismayu Road 1.5km from Garissa Township in Waberi Ward of Township Sub County, in Garissa County
PS Coordinates: 0°26'53.69"S 39°39'14.46"E (-0.44824, 39.65401)
Neighbours: Boys Town High School to the North-East, KMTC to the South-West, Greenwich College to the North, Commercial and Residential Properties all round
Nature of Activity: Procurement, Construction of a Shelter and Installation of a Medical Waste Treatment Incinerator (MWTI)
Name of Health Facility: Garissa County Referral Hospital (GCRH)

Land Registration Number (LRN): 326/06/07/5

On behalf of Proponent
Ministry of Health
P.O. Box 3001600100
Nairobi.
Signed: ____________________________
Date: 29/01/2023
Designation: Environmental Safeguards Officer

Official Stamp
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<td>Acquired Immuno-Deficiency Syndrome</td>
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<td>CDE</td>
<td>County Director of Environment</td>
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<td>CEP</td>
<td>Community Engagement Plan</td>
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<td>C-HERP</td>
<td>COVID -19 Health Emergency Response Project</td>
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<td>CLO</td>
<td>Community Liaison Officer</td>
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<td>Code of Conduct</td>
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<td>Corona Virus Disease of 2019</td>
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<td>County Public Health Officer</td>
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<td>Consultation and Public Participation</td>
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<td>Directorate of Occupational Safety and Health</td>
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<td>ESIA</td>
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<td>GCRH</td>
<td>Garissa County Referral Hospital</td>
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<td>GIIP</td>
<td>Good International Industry Practice</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>GPS</td>
<td>Geographical Positioning System</td>
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<td>Grievance Redress Mechanism</td>
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<td>HCF</td>
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<td>Health Care Waste Management</td>
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<td>HUTLCs</td>
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<td>Personal Protective Equipment</td>
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<td>Standard Operations Procedures</td>
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<td>Sexually Transmitted Infections</td>
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<td>World Health Organization</td>
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<td>WIBA</td>
<td>Work Injuries Benefits Act</td>
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<td>WTE</td>
<td>Waste Treatment Equipment</td>
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EXECUTIVE SUMMARY
The WBG has financed the Government of Kenya (GoK) through the MoH to implement the Kenya COVID-19 Health Emergency Response Project (C-HERP). The Project is a Multi-Phase Programmatic Approach for Strategic Preparedness and Response whose aim is to prevent, detect and respond to the threat posed by COVID-19 and strengthen national systems for public health preparedness. The C-HERP project entails eight components among them being Component 4 on Medical Waste Management\(^1\). This component will ensure the safe management of waste generated by healthcare activities.

Garissa County Referral Hospital (GCRH) is a Level 5 Health Care Facility (HCF) that provides comprehensive and specialized healthcare services. The hospital was started in 1972 and currently has a 300-bed capacity. Potentially infectious wastes generated by the hospital are sharps, cultures from medical laboratories or infected blood, infected wipes or masks from the quarantine, isolation and treatment center. Other wastes of importance are body fluids, all body parts, human tissues, placenta, chemical, pathological, pharmaceutical and radioactive wastes. In addition to the waste generated by the hospital, GCRH also receives wastes from other surrounding HCFs for incineration. Management of the healthcare waste (HCW) generated by, and received at the hospital is inadequate, exposing patients and health care workers to health and safety risks associated with poor waste management.

The Proposed project
The Ministry of Health (MoH) through CHERP is proposing to procure, construct a shelter and install a Medical Waste treatment incinerator (MWTI) of 75kg/hour rating at GCRH to improve on Healthcare Waste Management (HCWM) at the hospital. The MWTI will ensure the safe management of wastes generated from the hospital activities as well as from other Health Care Facilities (HCF) located in the surrounding areas of Garissa Township Sub-County. The installation of the proposed MWTI will require construction of a shelter to house the equipment. The shelter will provide for a temporary waste holding area, an incinerator chamber, sanitation facilities, operators’ changing rooms, material store room, operators’ office, emergency response system, and a fire suppression system. There will also be the actual installation of the incinerator and construction of perimeter fence to secure and control movement into and out of the waste management designated area. The estimated total area needed for MWTI and all support facilities is approximately 220m\(^2\). The total investment of the project is estimated to cost Kshs. 40,000,000.

Need for ESIA
The construction and installation of a MWTI at Garissa County Referral Hospital is likely to have environmental and social impacts. The World Bank requires that an environmental and social impact assessment be carried out for a project with potential E&S risks in order to determine the likelihood and magnitude of the risks and impacts and develop adequate mitigation measures to ensure that the project is environmentally and socially sound and sustainable. The Bank undertakes environmental and social screening of each proposed project to determine the appropriate extent and type of environmental and social assessment to be carried out. The Environmental Management and Coordination Act (EMCA) 1999, Revised in 2015 also requires screening and the carrying out of ESIA for such projects. Based on the nature of works of the CHERP project, as well as magnitude of anticipated environmental and social impacts likely to arise from its implementation and operations, the project was initially rated at the risk category of “High” in accordance with the World Bank’s Environmental and Social Framework (ESF). However, based on overall improvement of the project performance, the project is currently rated as “Substantial”.

To proceed with the implementation of this project without causing adverse impacts on the environment and social fabric, C-HERP/MoH with guidance from the World Bank undertook an ESIA to ensure that the implementation of the project is in line with the Bank’s Environmental and Social Safeguards Standards (ESSs) as well as project specific environmental and social safeguards instruments, which include the Environmental and Social Management Framework (ESMF), the Infection Control and Waste Management Plan (ICWMP), the Labour Management Procedures (LMP), the Security Management Plan (SMP) and the Stakeholders Engagement Plan (SEP). The MoH appointed Devlink Resources Consultants to carry out the ESIA of the proposed MWTI project in line with the World Bank’s ESF.

Policy, Legal and Institutional Framework
The administrative and legal framework relevant to the proposed MWTI Project in terms of relevant and applicable Policy Framework (Table 3), Legal Framework (Table 4), Institutional Framework (Table 5), Social Statutes (Table 6) including

\(^1\) Appendix 2: The Eight components of C-HERP
World Bank Environment and Social Standards (ESS) (Table 5: 7) and World Bank Group EHS Guidelines and other relevant Good International Industry Practice (GIIP) (Chapter 4) have been contextualized and presented in this ESIA.

Project Alternatives
Project alternatives considered in relation to implementation of the proposed project included:

- Relocating the proposed project to an alternative site. This was found not to be a viable option because the proposed installation of a MWTI is meant to assist in the efficient management of HCW from the operations of the hospital.
- The "No Project Alternative", meaning that the status quo is maintained. Despite the fact that this is the best alternative in terms of ensuring that the current environmental and social set up is not disturbed, this alternative is the least preferred in the long run from a public health, socio-economic and environmental perspective. Absence of the MWTI will only lead to intensification of the already existing challenges in the treatment and disposal of HCW at the hospital. Maintaining the status quo by poor handling of the HCW will aggravate atmospheric, soil and ground water pollution, besides the other threats to human health and safety
- Disposable of wastes in a sanitary landfill: Properly constructed and operated landfill sites offer a relatively safe disposal route for most wastes including HCW. However, this method requires an expansive site as well as specialized machines for compaction of each day’s waste. A sanitary landfill is also expensive to construct and maintain, beyond the ability of the HCF.
- Autoclaving of the waste: This entails steam treatment of the waste in a metal chamber sealed by a charging door and surrounded by a steam jacket. Autoclaves are expensive to install and maintain, and the technology does not render waste unrecognizable. It also does not reduce the volume of treated waste unless a shredder or grinder is added.
- Incineration of waste: Incineration is a high-temperature dry oxidation process that reduces organic and combustible waste to inorganic, incombusible matter and results in very significant reduction of waste volume and weight. Incineration enables disposal of the greatest variety of waste, results in significant volume reduction, sterilizes wastes completely, and the treated waste is unrecognizable as ash.

Stakeholder Consultation
With regard to stakeholder consultations for the proposed project, the ESIA team organized a public meeting on the 17th December 2020 for stakeholders identified from the project area who may be affected by the proposed project, as per the requirement of the Constitution of Kenya (2010), the EMCA, 1999, and in reference to the provisions of the Project’s Stakeholder Engagement Plan (SEP) guidelines. The people present during the stakeholder engagement were fifteen (13 male & 2 female) and included representatives of community members, business people, and county and hospital public health officers. All the stakeholders agreed that the project should go on as planned given that it is located within an operational hospital and that it will assist the hospital in ensuring effective HCWM.

Findings of the ESIA
The findings of the ESIA indicate that the potential environmental and social impacts generated during construction, installation, operation and decommissioning phases can be addressed effectively through the proposed mitigation measures indicated in Table 8 (ESMP) and the monitoring indicators suggested in Table 9. Other than creating employment opportunities to those involved in the construction process, once commissioned, the new incinerator will lead to positive environmental and social impacts by ensuring effective HCWM as well as creating employment opportunities for the operators.

Possible deleterious impacts during construction phase of the proposed project include: interferences with the physical setting of the area including the loss of vegetation, increased noise and vibration, air / dust emission, increased waste generation, accidental spillages, increased use and extraction of construction materials, possible encounter with physical cultural resources, occupational health and safety (OHS) risks, community health and safety risks, fire hazards, spread of communicable diseases and other infections including COVID-19, increase in HIV/AIDS prevalence and other sexually transmitted infections (STIs), labour influx, cases of human rights violation and gender inequalities. There is a possibility of having cases of conflict and insecurity, sexual exploitation and abuse (SEA), work and community related grievances. Potential negative impacts during operation phase include: fire risk, OSH risks for healthcare workers (HCW handlers and the MWTI operators), community health and safety risks from improper HCWM, air pollution from inefficient incineration of wastes, increased water use and liquid waste generation, increased energy use in the incineration process. Other pertinent
issues of concern will largely rotate around proper management of HCW, protection of workers and the public from such waste.

This ESIA report outlines appropriate mitigation measures for the anticipated negative environmental and social impacts such as re-vegetation of open patches of the project site, putting in place proper drainage channels for discharge of storm waters, rainwater harvesting, restricted vegetation clearance to minimize vegetation loss, sprinkling of water on bare/open surfaces to suppress dust. Other mitigation measures include having in place special containers for collection, storage and transportation of HCW to designated areas for its treatment through incineration. Detailed mitigation measures for all the potential negative impacts are summarized on Table 10 (ESMP) and the monitoring options have been suggested on Table 11.

**Project Implementation and Monitoring Arrangements**

The primary role of monitoring and supervision of the project environmental and social compliance falls squarely on Garissa County Government (GCG) since it has the mandate and institutional framework enshrined in the County Government Act, 2012. The implementation and monitoring of the project activities is the responsibility of the Health Department currently under GCG. Other key players in monitoring of compliance of the project will include:

i. MoH (E&S Specialists, Garissa County Referral Hospital Medical Superintendent, Hospital Administrator and Public Health Officer)
ii. Public Works Engineer (PWE)
iii. External monitoring from GCG County staff include:
   - County Director for Environment
   - County Director for Physical Planning,
   - Labour Officer
   - Community Development Officer
   - County Social Development Officer;
   - Physical Planner
   - Public Health officer/Inspector
   - Occupational Health and Safety Officer

**Conclusion**

i. The proposed project does not pose any serious environmental and social concerns, other than those of a moderate scale that accompany similar projects;

ii. The positive impacts associated with the implementation and operationalization of the proposed project far outweigh the probable negative ones, which will be adequately mitigated by following the prescribed environmental and social impact management and monitoring plans;

iii. The MWTI project is highly needed to address the breaches in medical waste treatment in GCRH especially with respect to treatment and the management of HCW generated from handling of COVID-19 cases; and

iv. As such, as per the above analysis on the aspects of both positive and negative environmental and social impacts of the project development and operations, we, the experts found no significant negative impacts that could pose adverse effects to the extent of barring the proposed project from being implemented. This is provided that the project is designed, constructed, monitored and operated in compliance with all applicable design and ESHS requirements.

**Recommendations**

The following are recommended for moving this project forward:

a. Though the anticipated negative environmental and social impacts of the project are considered moderate, localized and can be easily mitigated, the ESMP needs to be operationalized to ensure sustainable delivery of this project.

b. The institutional framework for the delivery of the project needs to be operationalized to effectively follow-up compliance as per their mandates.

c. The project should earmark some resources for supporting the optimal operation of the MWTI and its operators to benefit from continuous capacity building especially on aspects of safety and emergency preparedness.
1. INTRODUCTION
1.1. Introduction of the Project
The WBG has financed the Government of Kenya (GoK) through the MoH to implement the Kenya COVID-19 Health Emergency Response Project (C-HERP). The Project is a Multi-Phase Programmatic Approach for Strategic Preparedness and Response which aims to prevent, detect and respond to the threat posed by COVID-19 and strengthen national systems for public health preparedness. The C-HERP project entails eight components among them being Component 4 on Medical Waste Management\(^2\). This component will ensure the safe management of waste generated by healthcare activities. This ESIA report of the proposed Medical Waste Treatment Incinerator (MWTI) project falls under the above-named component because the proposed project entails procurement, construction of a shelter, installation and commissioning of a MWTI of 75kg/hour rating at GCRH.

1.2. Infection Control and Waste Management
HCW is defined as “all waste generated by healthcare establishments (human or veterinary), including research facilities and laboratories. It can include waste generated in the course of healthcare in homes. Hazardous healthcare waste is of primary concern, due to its potential to cause infections, disease or injury. Infection prevention and control (IPC) are evidence-based practices and procedures that are applied consistently in healthcare settings to prevent or reduce the risk of transmission of micro-organisms to healthcare providers, clients, residents and visitors. Therefore, either at healthcare or community setting, IPC is concerned with interventions relating to health and environment. According to the World Health Organization (WHO), about 15-25% of total health-care waste is infectious waste. The Ministry of Health (MoH) however estimates that 39% of the total Healthcare Waste (HCW) generated in Kenya is infectious, while 61% is non-infectious. Improper handling of healthcare waste can cause serious health problems for workers, community and environment.

IPC strategies to prevent or limit transmission in healthcare settings as per the WHO IPC in healthcare settings especially those handling COVID-19 cases include ensuring triage, early recognition, and source control (isolating patients with suspected COVID-19); applying standard precautions for all patients; implementing empiric additional precautions (droplet and contact and, whenever applicable, airborne precautions) for suspected cases of COVID-19; implementing administrative controls and using environmental and engineering controls.

1.3. Problem Statement
In Garissa County, infection control and waste management challenges are a salient feature for Healthcare Facilities (HCFs). Potentially infectious waste generated by the HCFs include sharps, cultures from medical laboratories or infected blood, infected wipes or masks from quarantine, isolation and treatment centers. These carry a higher risk of infections and injury than any other type of wastes. Other wastes of importance are body fluids, body parts, human tissues, placenta, chemical, pathological; pharmaceutical and radioactive wastes. Most of the HCFs dispose of their waste by open burning or disposal in a dumpsite without any pre-treatment. These disposal sites have no lining, soil cover or gas control measures, and thus pose the risk of air, soil surface and ground water pollution. GCRH lacks a functioning Healthcare Waste Management Plan (HCWMP), and thus faces challenges in handling and appropriate disposal of the HCW generated. The quantity of HCW generated by the hospital and that received from surrounding HCFs averages 1700 Kilograms per day\(^3\). There are no dedicated waste handlers with training to appropriately handle HCW at the hospital. The hospital has an existing incinerator which is poorly maintained and thus operates sub-optimally. The hospital also lacks sufficient funds to maintain and repair the incinerator, resulting in long down-times for the equipment following breakdowns. The wastes are not fully segregated before incineration, resulting in incomplete combustion and higher emissions from the incineration process. Although segregation is partly done at the wards, the wastes are desegregated by the time they are collected and transferred to the incineration site. The wastes are transported to the site by means of wheelbarrows, as opposed to wheeled and covered trolleys suited for the wastes. The waste disposal area is also not fenced off, and is accessible to both unauthorized persons and livestock.

\(^{2}\) Appendix 2: The Eight components of C-HERP
\(^{3}\) Anecdotal information from the Public Health department
Figure 1: A waste collector at GCRH transporting HCW using an overfilled wheelbarrow (Source: ESIA Field Work)

Figure 2: Non-discriminate open burning of HCW within the Garissa County Referral Hospital (Source: ESIA Field Work)

Figure 3: Animals feeding on HCW remains at GCRH (Source: ESIA Field Work)
1.4. The proposed solution
Through the technical support of CHERP in early 2021, Garissa County Referral Hospital developed an Infection Control and Medical Waste Management Plan (ICMWM) for the financial year 2021/2022. The ICMWM covers: roles and responsibilities including designate waste management officer and waste classification (including quantities of waste generated). Other aspects covered by the ICMWM include: waste minimization; reuse and recycling; waste segregation; onsite handling, transport and storage practices (including containerization, color coding, labeling and signage); waste-treatment and disposal options (onsite and offsite); record keeping and documentation, training and monitoring; costs relating to waste management, including capital, operational and maintenance costs.

The hospital has designated a waste management officer, who is the public health officer responsible for waste management, sanitation among other hospital environmental health and public health aspects within the hospital. The public health officer received training through the project in early 2021 on waste management. However, all those working under the officer, who include waste handlers are yet to be trained. There is a plan to train those who are yet to be trained as soon as the new MWTI is installed.

The installation of the MWTI is one of the components included in the hospital ICMWM. This is expected to go a long way in ensuring effective treatment of HCW at the hospital as well as assist other HCFs in the County. The proposed 75 kg/hr MWTI will treat 600 kg/day of waste when operated for 8 hours per day and is more than adequately sized to treat the infectious and highly infectious waste generated by the HCFs. This is the main focus of the CHERP support for the HCFs.

The proposed MWTI will help in ensuring effective treatment of HCW in GCRH as well as assist in appropriate disposal of HCW from other neighbouring health facilities. However, the operation of the MWTI will be effective if there is periodic maintenance, and checks such as monitoring of emissions to ensure that it is operating within the regulatory limits. Segregation of waste must also be practiced to ensure that only the intended wastes are incinerated.

Renovation of the existing MWTI is also proposed, to serve as a standby facility and be operated when the new MWTI is out of service. The two MTWI could also be operated simultaneously to treat a larger volume of HCW if necessary.

1.5. Justification of the Project
The HCF continues to be the County Referral Hospital on top of handling specialized infectious diseases role including hosting the County COVID-19 isolation and treatment centre. The need for this Project is therefore justified since the continued infectious diseases’ function coupled with the hospital’s routine operation requires additional and effective treatment of the healthcare waste generated. The MWTI may also be used to treat other wastes generated from the HCF, including waste from other health facilities within Garissa.

1.6. Justification for Preparation of Safeguards Instruments
HCWM requires an organized systematic channelling through practical appropriate recovery and disposal routes, consistent with acceptable public health and environmental safeguards. The MoH estimates that 47% of hospital waste generated cannot be accounted for. This indicates that it is being illegally dumped, buried or burnt somewhere un-designated for the purpose thus risking the health of people and the general environment.

The construction and installation of a MWTI at Garissa County Referral Hospital is likely to have environmental and social impacts. The World Bank requires that an environmental and social impact assessment be carried out for a project with potential E&S risks in order to determine the likelihood and magnitude of the risks and impacts, and develop adequate mitigation measures to ensure that the project is environmentally and socially sound and sustainable. The Bank undertakes environmental and social screening of each proposed project to determine the appropriate extent and type of environmental and social assessment to be carried out. The Environmental Management and Coordination Act (EMCA) 1999 also requires screening and the carrying out of ESIA for such projects. Based on the nature of works of the CHERP project, as well as magnitude of anticipated environmental and social impacts likely to arise from its implementation and operations, the project was initially rated at the risk
category of “High” in accordance with the World Bank’s Environmental and Social Framework (ESF). However, based on overall improvement of the project performance, the project is currently rated as “Substantial”.

Six of the ten ESSs of the WB’s ESF have been screened as relevant as stated below:

i. ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
ii. ESS2: Labour and Working Conditions;
iii. ESS3: Resource Efficiency and Pollution Prevention and Management;
iv. ESS4: Community Health and Safety;
v. ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (HUTLCs); and
vi. ESS10: Stakeholder Engagement and Information Disclosure⁴.

1.7. ESIA Scope
ESIA is a process for predicting and assessing the potential environmental and social impacts of a proposed project, evaluating alternatives and designing appropriate mitigation, management and monitoring measures for the adverse impacts. Therefore, an ESIA is a systematic analysis of projects, policies, plans or programs to determine their actual and potential environmental and social impacts, the significance of such impacts and to propose measures to mitigate the negative ones, (NEMA, 2002) and it is mainly used at the level of specific development projects such as the proposed project on construction and installation of a MWTI at GCRH.

The scope of this consultancy entailed the carrying out of an ESIA on the proposed MWTI to identify the potential environmental and social impacts associated with the proposed project and recommend appropriate environmental and social mitigation measures for integration in all phases of the project cycle.

1.8. Terms of Reference (ToRs)
The primary objective of the consultancy is to undertake an ESIA of the proposed MWTI project at GCRH. The ToRs of this ESIA are:

i. To identify and assess potential positive and negative environmental and social impacts associated with the proposed civil works and installation;
ii. To advice the most appropriate environmental, social, health and safety mitigation measures for integration in all phases of the project cycle;
iii. To determine the extent to which the activities that relate to the civil works and installation at the project site as well as its operation comply with sound environmental health and safety management practices;
iv. Undertake project alternative analysis;
v. Identify any potential design opportunities and appropriate measures that will enhance the sustainability of the HCWM facility;
vi. Conduct a comprehensive public consultation process as provided for in the Stakeholder Engagement Plan (SEP);

vii. Generate an Environmental and Social Management and Monitoring Plan (ESMMP) that describes the mitigation measures to be carried out, scheduling and responsibility of such measures, and a detailed monitoring process and its schedule; and
viii. Prepare an ESIA report compliant with the EMCA and subsidiary legislation.

1.9. Methodology of ESIA
For the purpose of the assessment and preparation of the ESIA project report, the following approaches and methodologies were employed:

i. Site visits: For physical inspection of the site and surrounding areas meant for collection of primary data
ii. Desktop studies: This approach involved review and analysis of literature for acquisition of secondary data;
iii. Environmental and social screening: This was carried out following the requirements as specified in the C-HERP ESMF. The classification of the sub-project is as per the provisions of the Laws and Regulations applicable in the country. Therefore, the project was categorized as among those requiring ESIA under schedule two (2) of the EMCA, 1999. In addition, under the World Bank ESF, the Environmental and Social

⁴ Environmental and Social Screening Report (MoH,2020)
Risk associated with the proposed project is classified as "substantial".

iv. Environmental and social scoping: This approach provided the key environmental and social issues to be investigated in relation to implementation of the proposed project;

v. Consultation and Public Participation (CPP). The CPP was done as per the SEP guidelines and in conformity with the provisions of the Constitution of Kenya (2010) and the EMCA, 1999, that all demand for public engagement prior to the implementation of a project such as the one being proposed;

vi. Identification of potential impacts and preparation of an ESMP; and

vii. Confirmation and sharing of findings with the project proponent (Reporting).
2. PROJECT DESCRIPTION

2.1. Proposed Location of the Project

The proposed MWTI will be located within the GCRH compound. It will be next to the existing MWTI. The hospital, which was started as a municipal council facility in 1967, was transferred to MOH and relocated to the current place in 1972. It has a 300-bed capacity handling an average of 500 patients per day. It is administratively located an average of 1.5km from Garissa Township in Waberi Ward of Garissa Township Sub County, in Garissa County. The facility is located next to Boys town high school to the north-east, KMTC to the south-west, Greenwich College to the north, commercial and residential properties all round. The site is next to the currently utilized MWTI, the mortuary and the COVID-19 isolation ward. The maps below, figure 1 and 2 show the location of GCRH and proposed MWTI respectively.

Figure 4: A Google earth map showing the location of GCRH in relation to its neighborhood

Figure 5: A Google earth figure showing the location of the proposed MWTI
Garissa County is one of the three counties in the North Eastern region of Kenya. It covers an area of 44,174.1Km² and lies between latitude 10°58’N and 20°1’S and longitude 38°34’E and 41°32’E. The county borders the republic of Somalia to the east, Lamu County to the South, Tana River County to the West, Isiolo County to the North West and Wajir County to the North.

2.2. Site and Land Ownership
The GCRH is a public hospital whose land ownership is vested in the MoH of Kenya through the GCG. The land registration number (LRN) or departmental reference number is 326/06/07/5. The survey map is as presented in appendix 11 of this report. There was no dispute raised on land ownership during the public consultation session.

2.3. Project Description
The proposed project will involve construction of the MWTI shelter, procurement of a MWTI 75kg/hour rating, its
installation and operationalization. The incinerator will be sheltered in a permanent structure designed to ensure that there is adequate ventilation. The project is projected to cost **KES. 31,200,000** and it is to be procured in line with the requisite MOH specifications. Approximately 6 months will be required to construct the shelter and install the MWTI.

2.3.1. The shelter
The shelter will be comprised of the following:
- Walling-natural building blocks;
- The Roofing-metallic trusses, iron sheets;
- Metallic grills (for ventilation);
- A Burglar proof metallic door; and
- Cemented floor. *(See annexure plans and designs for more information on the proposed incinerator shelter appendix 10).*

The total area required for the shelter is approximately 220m$^2$.

2.3.2. The incinerator
The proposed MWTI is expected to have various components that will complement each other to ensure that wastes are burnt as per the desired levels and as per the design of the incinerator. The components include the Manual loading door; Main/Primary and Secondary combustion chambers; after burning emission control chamber/Gas Scrubber; Discharge chimney; Control panel and Fuel storage.

![Figure 8: A schematic cross section of a modern MWTI showing its different components](https://www.researchgate.net/figure/The-schematic-diagram-of-a-clinical-waste-incinerator_fig1_23749959)

- **a) Manual Loading Door**
  This is the inlet where solid waste will be fed to the incinerator.

- **b) Primary Chamber**
  This is where combustion of the solid wastes will take place. The chamber is cylindrical in shape and will horizontally be fitted along the floor of the incinerator shelter.

- **c) Secondary Chamber**
  The products of combustion from the primary chamber exhaust into the secondary chamber to be located directly
above the primary chamber for treatment. Within the secondary chamber additional heat and air will be added to promote combustion in the gaseous phase, thus ensuring complete combustion of the volatile and solid particulate.

d) Gas Scrubber/Emission Control Chamber
Treated gases will exit the secondary chamber, directly into the emission control chamber, what is popularly known as scrubber. The gas scrubber/ washer is designed to suck all particulate matter from gases emanating from the burning chambers. Particulate matter from combustion process will be entrained within the spray of water which also will cool the gases to approximately below 450°C.

e) Control Panel
The control panel is fitted with various control knobs that are used to operate the incinerator. The control panel entails controls for time and temperatures.

f) Fuel Storage
The fuel (diesel) used in burning the wastes will be stored in metallic tank raised above the main machine. The incinerator will be fed by a 200L diesel tank. The tank will be fitted with a level gauge, feeder and fill pipes and a breather.

g) Plant Duty and Design Parameters
i. Design Burn rate: Up to 75Kg/Hour in batch loads/ Up to 600kg range per 8-hour day or 1050kg per day if operated for the maximum period of 14hours)
ii. Duration of Operation: Nominally 8 hours/day 310 days/annum (Up to a maximum of 14hrs/day)
iii. Waste: General / Medical
iv. Moisture content of waste: 20-50%
 v. Weight of ash residue: 10%-12% (Subject to waste profile)
vi. Volume of ash residue: 5-7% (Subject to waste profile)
vii. Auxiliary fuel: Diesel
viii. Maximum Noise level: 82dB (A) at 1m
 ix. Ambient operating condition: -5°C to 50°C
 x. Energy – ignition and after burners maximum power rating 450 KW/hr; ignition diesel consumption average of 3ltrs and after burner consumption average of 6 lts; connected to 3 phase 415 V at 50/60 Hz
xi. Water supply – adequate
xii. Waste water management – MWTI will be connected to the hospital waste water collection and disposal system

2.3.3. The ash pit
The ash pit is the final disposal point of healthcare waste. The ash pit will be carefully constructed to avoid possible underground water contamination, about 1.5m above the water table and its wall lined to prevent contamination of underground water. The pit will also be located in a manner to protect from the risk of flooding. The pit should be secured with a lock to prevent access to unauthorized persons/ avoid accidents.

2.4. Project Design Considerations
The implementation of the proposed MWTI unit at GCRH will require the following to be considered to make it fully operational:
i. Construction of a shelter to house the MWTI that should, as a minimum, entail waste storage/holding area, incinerator chamber, sanitation facilities, staff changing rooms, material/equipment store room, office, emergency response system and fire suppression system. As per the design, the total area required is 220m²;
ii. Installation of the MWTI with primary and secondary burning chambers, control panel and fitted with an air scrubber;
iii. Construction of perimeter fence around the waste management area so as to secure and control movement into and out of the waste management designated area;
iv. An ash pit designed as per the data on HCW generation from the GCRH and other HCF expected to deliver their HCW at the MWTI for incineration; and
v. Construction of a paved path connecting the MWTI with other hospital facilities for easy delivery of HCW.

The proposed project site location was deemed appropriate based on the layout of the hospital and other hospital
operations. This is considering that it is approximately 80m away from the nearest hospital facility and at least 100m away from the nearest homestead.

2.5. Project Activities
2.5.1. Planning and Design Phase
This is a purely preparatory stage of the project with minimal physical activities at the project site. The activities entail mostly boardroom consultations/meetings, site visits, desktop works, stakeholders and public consultations and participation. This will entail the design and drawing of the specific architectural plans for the MWTI shelter, applying for approvals from the Garissa County Development control section, getting into collaborative agreements with key stakeholders and undertaking the ESIA and seeking NEMA approvals.

2.5.2. Construction Phase
Activities applicable during the construction of the waste treatment shelter and subsequent installation of the incinerator will entail;

i. Recruitment of construction and installation staff and their induction on environmental and social safeguards requirements - The number of staff needed may be about 20.
ii. Establishment of a store for construction materials equipment;
iii. Transportation and delivery of building materials;
iv. Site clearance and fencing;
v. Excavation of foundations and civil works, installation of the MWTI, connection of utility services such as water and electricity; and
vi. Construction of an ash pit.

During this phase, there will be continuous grievance management, engagement of relevant stakeholders including monitoring and reporting on the ESMP implementation.

2.5.3. Operation Phase
Upon commissioning, the MWTI will be utilized in ensuring proper treatment of HCW generated from the COVID-19 treatment Centre, healthcare waste from within the GCRH and other HCFs located within Garissa Sub-County. Maintenance activities will include facility cleaning, routine checks, air quality monitoring and other necessary maintenance of the equipment. Workers will be employed by the hospital management and trained initially by the project on operation of the incinerator and undertaking minor repairs as part of what they will be trained to do in the course of operating the incinerator.

The hospital management with its own funding or from the county government shall be compelled to ensure the existing MWTI is improved to meet safeguards requirements. The existing MWTI should therefore be refurbished. It shall act as a standby alternative in times where the new MWTI may have some breakdown or during routine servicing or be put into operation at the same time during unprecedented heavy work load. Maintenance activities for both incinerators shall include facility cleaning, routine checks for quality assurance and other necessary repairs following the standard operating procedures (SOPs).

2.5.3.1. Incineration Ash Management
The implementation of the MWTI is expected to provide for an ash pit next to the MWTI (within the perimeter wall or underneath the MWTI shelter).

2.5.3.2. Effluent and Wastewater Management
Garissa Town including GCRH is served by a sewerage system connected and managed by Garissa Water and Sewerage Company (GWSC) waste water network. Hence, the GCRH has a functional internal wastewater disposal system that serves to dispose wastewater from the entire hospital. It is expected that all wastewater generated by the operations of the proposed MWTI will be safely disposed via connection to the said internal wastewater system.

It is however notable that the hospital does not pre-treat its wastewater before releasing it into the sewerage system. The HCF has not carried out any waste water sampling, testing and analysis to determine whether the
effluent meets the conditions for discharge into the sewer system. Effluent discharge records are also not maintained by the HCF.

2.5.3.3. Cleaning and Disinfection
The HCF will be responsible for ensuring regular washing and cleaning of the MWTI shelter and compound. Cleaning and disinfection operations will involve the use of substantial amounts of water, appropriate disinfectants, detergents etc., which should be disposed into the main sewer management system serving the hospital. The volumes of such wastewaters will depend on the cleaning frequencies.

2.5.3.4. Expected Operation Procedures of the Incinerator
The waste stream recommended to be treated by the MWTI include contaminated sharps, haemodialysis waste, plastic material, glass material including used or damaged vaccine vials, single use surgical instruments and materials, PPE materials, liquid bio-hazardous waste, blood bags, urine bags, anatomical and pathological waste. However, volatile and semi-volatile organic compounds, chemotherapeutic waste, mercury, other hazardous chemical waste and radiological waste should not be treated in the MWTI. These kind of special waste if liquid, shall be appropriately diluted before disposal into the hospital main sewerage management system, solid ones shall be managed on a case by case basis, according to available guidance while the radiological wastes should be collected for proper disposal by the radiological material suppliers. All such processes must be in line with available guidelines and regulations as provided for by MOH and NEMA waste management regulations 2006.

If waste streams are not properly segregated to prevent hazardous chemicals from being fed into the primary combustion chamber, toxic contaminants will be released into the air, condensate, or in the treated waste. To minimize problems relating to bad incineration practices, the operation of the MWTI should strictly follow the operation procedures highlighted here below.

The following are the expected operation procedures during incineration of HCW.

a) Waste Charging
The operator has the option of selecting which items are included in a particular waste charge. Waste properties which should be considered when the waste is segregated into charges include the heating value; the moisture content; the plastics content and the quantity of pathological wastes. The heating value and moisture content of waste affects the performance of an incinerator. A charge of waste with a very high heating value may exceed the thermal capacity of the incinerator. The result is high combustion temperature, which can damage the refractory of the incinerator and can result in excessive emissions. Similarly, a charge of waste with very high moisture content will not provide sufficient thermal input, and the charge will require the use of more auxiliary fuel than usual. Plastic items are an example of materials with high heating values. Large quantities of plastic, which may contain polyvinyl chloride, should be distributed through many waste charges, not concentrated in one charge, if possible.

When sorting loads of waste to be incinerated, the operator should try to create a mixture of low, medium, and high heating value wastest in each charge, if possible, to match the design heat release rate of the incinerator. In general, lighter bags and boxes will contain high levels of low-density plastics which burn very fast and very hot. Heavier containers may contain liquids (e.g., blood, urine, dialysis fluids) and surgical and operating room materials which will burn slowly. As a general rule for segregating waste into charges, the operator may mix light bags and heavy bags to balance the heating value of each charge. If several different types of waste, (i.e., red-bag, garbage and trash) are being charged to the incinerator, charging the incinerator with some of each waste type is better than charging it with all of one waste type. Special care should be taken to avoid overcharging the incinerator (beyond its intended use) with anatomical wastes. Prior to initiating charging, operation of the combustion air blowers and ignition and secondary burners should be checked following the manufacturers’ recommendations. The proper operation of the primary and secondary burners is best achieved by observing the burner flame pattern through the view ports in the incinerator wall or in the burner itself as well as the control panel.

The incinerator is charged cold and because the waste units generally are small, they are usually loaded manually. The waste is loaded into the ignition/primary chamber, which is filled to the capacity recommended by the
manufacturer. Typically, it is recommended to fill the incinerator completely, but not overstuffing the chamber. Overstuffing can result in blockage of the air-port to the combustion chamber thus premature ignition of the waste and poor performance (i.e., excess emissions) during start-up. Overstuffing also can result in blockage of the ignition burner port and damage to the burner. After charging is completed, the charge door seal gasket is visually checked for irregularities. The door is then slowly closed and locked. The charge door seal gasket should then be inspected for any gaps that would allow air infiltration into the primary chamber. Once operation is initiated, no further charges should be made until the next operating cycle is initiated, i.e. after cool down and ash removal.

b) Waste Ignition
Prior to ignition of the waste, the secondary combustion chamber should be preheated to a predetermined temperature by igniting the secondary burner. A minimum secondary chamber temperature of 1200°C is recommended prior to ignition of the waste. After the secondary chamber is preheated, the secondary combustion air blower is turned on to provide excess air for mixing with the combustion gases from the primary chamber. The primary chamber burner is ignited to initiate waste combustion. When the primary chamber reaches a pre-set temperature, mostly 600°C (i.e., the minimum operating temperature for the primary chamber) and the waste combustion is self-sustaining, the primary burner is shutdown. The primary combustion air and secondary combustion air are adjusted to maintain the desired primary and secondary chamber temperatures (typically, this adjustment is automatic and can encompass switching from high to low settings or complete modulation over an operating range). During operation, the primary burner is reignited if the ignition chamber temperature falls below a pre-set temperature. Similarly, the secondary burner is reduced to its lowest firing level if the secondary chamber rises above a pre-set high temperature setting. Again, control of the burners, like the combustion air, is typically automated.

As per the MOH specifications, the initial and after burn ignition requires that the MWTI shall fully have packaged oil type, complete with electric ignition and flame failure controls, wired with continuous running fan and complete with all valves, fan and motor, if the incinerator is diesel fired type. The ignition burners shall be arranged for on/off operation. The burners will be expected to have a maximum rating of at least 450kW/hour with average and maximum diesel consumption of between 3 to 9 liters per hour. The specifics on the consumption are contained in the MOH incinerator’s specifications.

c) Special Considerations
If pathological waste is being burned, the ignition burner should be set to remain on until the waste is completely burned. Further, the volume of waste charged needs to be significantly reduced. The time required to burn an equivalent volume of such waste will be extended, since the waste contains high moisture and low volatile content. To destroy pathological waste efficiently, the waste must be directly exposed to the burner flame; consequently, piling pathological waste in a deep pile (e.g., filling the entire chamber) results in inefficient combustion.

d) Burn down
After the waste burns down and all volatiles have been released, the primary chamber combustion air level is increased to facilitate complete combustion of the fixed carbon remaining in the ash. The temperature in the primary chamber will continue to decrease indicating combustion is complete. During the burn down period, the primary burner is used to maintain the primary chamber temperature at the predetermined minimum level of the operating range. The length of time required for the burn down period depends on the incinerator design, waste characteristics, and degree of burnout desired. A typical burn down period is 2 to 4h. When combustion is complete, the primary and secondary burners are shutdown. Shutdown of the secondary burner which initiates the cool down period usually is automatically determined by a pre-set length of time into the cycle. The combustion air blowers are left operating to cool the chambers prior to subsequent ash removal. The blowers are shutdown when the chambers are completely cooled or prior to opening the ash door for ash removal. Cool down typically lasts 5 to 8h.

e) Ash Removal
The final step in the cycle is examination of ash burnout quality. Inspection of the contaminated incinerated ash is one tool the operator has for evaluating incinerator performance. The operator should look for fine grey ash with the consistency of ash found in the fireplace at home or in the barbeque grill. Ash containing large pieces of
unburned material (other than materials which are not combustible, such as cans) shows that incinerator performance is poor. It may be necessary to return these large pieces of material to the incinerator to be re-burned. Ash colour also is an indicator of ash quality. White or grey ash indicates that a low percentage of carbon remains in the ash. Black ash indicates higher carbon percentages remaining. Although carbon remaining in the ash indicates that available fuel has not been used and combustion has not been complete, the fact that carbon remains in the ash is not in itself an environmental concern or an indicator that the ash is not sterile. Nonetheless, ash colour can be used to assist the operator in evaluating burnout and incinerator performance.

During the operation of the MWTI, the hospital management through the Hospital Public Health office will continue to engage stakeholders as relevant, ensure adequate security arrangements of the MWTI, provide adequate PPEs for workers operating the Waste treatment equipment and manage any complaint that may arise from the project operations.

2.5.4. Decommissioning Phase
In case of the MWTI completely breaks down or should the need arise to discontinue operations of the MWTI, it should be decommissioned by either demolishing the facility including dismantling the incinerator machine or carrying out major renovations and redesigning its shelter. Should there be need for decommissioning the facility; the following will have to be considered.

2.5.4.1. Demolition Works
Upon decommissioning, the facility will be demolished and this usually produces a lot of solid waste, which could be reused or if not reusable, disposed of appropriately by a licensed waste disposal company.

2.5.4.2. Dismantling of Equipment and Fixtures
If the equipment is completely dismantled and removed from the site on decommissioning of the project, priority should be given to reuse of the equipment parts. This being an infectious waste management centre, all materials/machines deemed fit for further use MUST be disinfected thoroughly before being put into any other use.

2.5.4.3. Site Restoration
Site restoration is achieved through replenishment of the topsoil and re-vegetation using preferably indigenous plant species. This is usually done once all the waste resulting from demolition and dismantling works is completely removed from the site.
3. ENVIRONMENT AND SOCIAL BASELINE INFORMATION

3.1. Project Location
The baseline information for this project was gathered from both secondary sources and the field visits undertaken. The project is within GCRH, which is located in Garissa town in Waberi Sub-Location, Garissa Town Sub-County of Garissa County. Garissa Town is the headquarters of Garissa County and the hospital is located 1.5km from the town center.

3.2. Physiographic and Natural Conditions
3.2.1. Physical and Topographic features
The whole of Garissa County is basically flat and low lying without hills, valleys and mountains. It rises from a low altitude of 20m to 400m above sea level. The major physical features are seasonal Laghas and the Tana River Basin on the western side. The project area is completely flat with no physical features in sight. The project site soils have low water retention capacity but support vegetation and are highly erodible.

3.2.2. Ecological Conditions
Garissa County, where the project lies, is principally a semi-arid area falling within ecological zone V-VI and receives an average rainfall of 275mm per year. There are two rain seasons, the short rains from October to December and the long rains from March to May. Rainfall is normally in short torrential downpour making it unreliable for vegetation growth.

3.2.3. Climatic Conditions
Given the arid nature of the county, temperatures in the project area are generally high throughout the year ranging from 20°C to 39°C. The average temperature is however 36°C. The hottest months are September and January to March, while the months of April to August are relatively cooler. The humidity averages 60g/m3 in the morning and 55g/m3 in the afternoon. An average of 9.5hours of sunshine is received per day. Strong winds are also experienced between April and August with the rest of the months getting calm winds.

3.3. Social and Economic Baseline
3.3.1. Demography and Hospital Catchment
Garissa hospital is situated in Garissa County with population of 841,350 as at 2019. The HCF being within Garissa Township, serves patients from areas of Garissa town and its environs. Being a referral hospital, it also serves the larger Northern Kenya including Wajir, Mandera, Isiolo, Tana River and parts of Kitui Counties (Mwingi).

3.3.2. The Hospital Capacity and Services Offered
The hospital, which was started in 1972, has a bed capacity of 300. The hospital attends to an average of 500 patients in a day, hence an average of 15000 patients per month. GCRH offers diverse healthcare services to the public such as maternal healthcare, radiology, youth friendly services focusing on reproductive health and gender-based issues, inpatient and outpatient services for medical and surgical cases, and comprehensive care services. The hospital does not have adequate facilities to operate as a level 5 hospital but has 1 pharmacy for inpatient and outpatient, a mortuary, kitchen, etc.

3.3.3. Health Facility Personnel and Staffing
The hospital has a total of 423 staff. The personnel at the hospital are on different forms of employment contracts, with a section from national government who are on permanent and pensionable terms while those from the county, majority are on 3-year contracts and a section on permanent and pensionable terms. There are also those engaged under the Universal Health Coverage (UHC) and casuals on 3 months’ contracts. The proportion of female to male is 70% to 30%, respectively. Medical Waste Management is under the Public Health department where we have the County Public Health Officers and the Hospital Public Health Officers. At the time of Study, the hospital had 3 public health officers dealing with EHS issues; one was deployed to the COVID-19 treatment centre, another stationed at the hospital and the 3rd one being the in-charge. However, depending with work load situations and the COVID-19 pandemic response requirements at the hospital, the county public health office indicated readiness to provide more personnel whenever needs exceed the capacity of the team at the hospital.

3.3.4. COVID-19 Information and Containment Measures
As at February 2nd 2022 Kenya had 321,671 cumulative confirmed cases of COVID-19, number of fatalities were at 5,593 cases while the recoveries amounted to 295,433 cases. Out of this, Garissa County was accounting for
1,133 cumulative cases (Source; MOH website) with 1,596 being males, 699 being females and under 12 years old being 43. The fatalities from Garissa County stood at 54. GCRH reports to have cumulatively had 809 positive cases of COVID-19 with 532 being males and 277 being females. The hospital has had what used to be the TB Clinic renovated to a COVID-19 isolation and treatment center. The COVID-19 center has 80 bed capacity with 40 of the beds being for females with a similar number for males. The isolation ward has a dedicated team of 24 staff members working on alternating week shifts and not allowed to offer their services in any other parts of the hospital. As at the time of the study (17/12/2020) there were 3 COVID patients in the isolation ward with 2 being females and 1 male. The notable containment measures being undertaken by the hospital are that no unauthorized persons are allowed to gain entry within the hospital without a mask and without a deserving need. Hand-washing stations have been placed at designated points within the hospital compound, social distancing being observed, spraying of the wastes from the isolation wards with 0.5% chlorine solution before being taken to the incineration site, on job training of the hospital staff on COVID-19, vaccination of all hospital staff and temperature check at the main hospital entrance point.

3.3.5. Water Supply
The hospital is dependent on one source of water supply, the water connection from the Garissa Water and Sewerage Company (GWSCO), which draws its water from the river Tana lying to the west and flows southerly from the town. The hospital does not practise rain water harvesting but it has storage tanks of different capacities, overhead water tanks of 90,000 liters while others are at ground level totalling to 150,000 liters.

3.3.6. Power Supply and Distribution
The project influence area (PIA) is well covered with electric power connectivity. The hospital in general and the waste treatment area where the MWTI will be installed are connected to a 3-phase power supply from the national grid since the incinerator shall be run on a three-phase power supply (mains). The HCF also has a backup of four generators placed at specific areas like the ICU, the maternity, X rays, MRI. According to the Hospital Administrator, the generators are able to run all hospital machinery when mains electricity power is not available, and hence they will be able to run the MWTI. It is recommended that a sub-meter for the MWTI is installed for purposes of monitoring its energy consumption. The MWTI burners will be expected to have a maximum rating of at least 450kW/hour with average and maximum diesel consumption of between 3 to 9 liters per hour. The MWTI shall be connected to 3 phase mains power supply. The specifics on the consumption are contained in the MOH incinerator's specifications.

3.3.7. Fire Safety and Fighting
There has not been any fire incident within the HCF in the last three years. The hospital has fire safety and emergency response procedures in place for firefighting among other types of man-made emergencies and natural events. The hospital has firefighting equipment such as fire extinguishers placed at strategic points within its facilities and compound. Only one building has a fire horse. The HCF also has a dedicated firefighting raised water storage tank of 20,000 litres. However, the current MWTI is not fitted with firefighting equipment.

3.3.8. Drainage and Sewer Networks
As noted earlier in section 2.4.3, the hospital is connected to the Garissa Water and Sewerage Company network. However, it was observed that there were no developed storm water drains.

3.3.9. Solid Waste Management Facilities
The county has a dumpsite and several trucks which collect garbage from the estates and the CBD. Recently the county especially Garissa town has witnessed tremendous improvement in terms of garbage collection and disposal from estates and CBD to the dumpsite. The nearest dumpsite from the hospital is 10km away.

3.3.10. Transport and Communication
There is good network of roads serving the project area with major access to the hospital through the tarmac. Communication is highly efficient around Garissa Town with good coverage of the 4G mobile telephony networks including the hospital. The hospital walkways and driveways are well paved, but the path to the proposed MWTI is not paved.
3.3.11. Local Land Uses
The hospital sits on an average of 10 acres of land, with approximately 50% of the hospital land estimated to having been put to use through constructed hospital facilities like the wards, mortuary, hospital administration block, maternity wing and roads/walkways.

3.3.12. Cultural and Historic Sites
There are no sites of cultural or historic importance identified within the PAI. It is important to note that Garissa Hospital is located in a peri-urban set-up that is fairly developed with little or no space reserved for cultural or historic establishments. However, if during the excavation for construction of the MWTI shelter any artifact of cultural or historic importance is found, the Chance Find Procedures guidance provided (see appendix 3) for in the ESMF should be applied diligently as reports are made to the National Museums of Kenya (NMK).

3.3.13. Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities
There were no indigenous historically underserved traditional local communities living within the PAI. This is largely attributed to the fact that the local communities are cosmopolitan in nature and the project area is fairly urbanized.

3.3.14. Health, Safety and Security
The hospital has no standalone health and safety plan. Noted is that issues of occupational health and safety are the responsibility of the public health department and the infection prevention and control committee. This means these responsibilities are supposed to be part of the hospital infection control and waste management planning. The security of the facility is under the responsibility of the hospital administrator. While appreciating that the HCF does not have standard reporting for OHS accidents and incidents, it was found that there was no serious OHS accidents or worker deaths documented since the last 4 years.

The hospital is secured with an incomplete perimeter wall and barbed wire fence. There are 4 points of entry and exits which are manned by contracted security guards together with Kenya Police Officers. There are surveillance cameras at strategic points within the hospital like the Causality, X ray department and administration block to monitor safety of hospital property and ensure order within the hospital. However, the CCTV was not operational as at the time of the assessment. Due to the incomplete fencing, the hospital is faced with the challenge of possible incidences of patients escape, trespass by community members and intrusion by livestock.

3.3.15. Child protection
The hospital receives cases of lost children or children being abandoned in the hospital by caregivers. Hence, the hospital together with the area administration has a child protection plan to follow in case of such incidents. The hospital has a hotline number to contact in case of notable child abuse and negligence related incidences. Tender age children in wards are taken care by female caregivers. The hospital has a proper way of documenting issues related to children, be it related to violence or sexual abuse. The hospital management ensures that no children are employed within the premises through ensuring all casuals produce copies of the identification cards before being engaged. The management does not allow anybody, and especially children to be subjected to any form of suffering within and around the hospital. This is done in collaboration with the local administration (the Chief's Office). The privacy of children is also of paramount importance to the hospital’s administration and management and a lot of confidentiality is pursued in handling child cases such as rape among children, neglect by care givers to HIV positive children, unwanted /teenage pregnancies.

3.3.16. Gender-Based Violence/Sexual Exploitation and Abuse
The hospital has a GBV desk and various means of communication for workers and patients in case of a GBV risk or incident. There is clear separation between males and females in the wards and sanitary facilities. The children wards are not marked by gender since its women caregivers who are permitted to be with children in the wards. Gender main-streaming is being implemented by hospital and the 1/3 gender rule has been met by the hospital management as 70% of staff are women and 30% men.

3.3.17. Disability
The hospital has an orthopaedic department, which purely deals with disability issues within the hospital. A lot of sensitization is done through the CHVs to help bring out patients with disabilities in the community for assessment
and access to proper and timely healthcare. There is also a department for the deaf which offers linkages to community members. The OPD is the only building within the hospital that has ramps and is disability friendly.

3.3.18. Grievance Redress Mechanism
The hospital does not have a specific documented GRM but has various methods of communication in case of a grievance with a complainant book at the customer care desk. Emergency cases are brought to the matron’s office or hospital manager’s office, for specific departments complaints are taken to departmental heads for solutions. More so, the hospital has a hotline number 0758 722007, which is known to the community and which is commonly used. The hospital also uses community healthcare workers to reach out to the community through public meetings. There are also walk-in complainants and use of a suggestion box. The facility also has a service charter displayed at the main gate.

Complaints are handled by the hospital management committee weekly and monthly. Some cases are handled as they come and community health workers (CHWs) also give feedback to community members. This seems to be a new area for the hospital and therefore no clear protocols for addressing complains once received.
4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK
This section describes the administrative and legal framework relevant to the C-HERP Project in terms of applicable policies (including World Bank ESSs and WBG EHS Guidelines), legal instruments and, stakeholder institutions as summarized in subsections: Policy Framework (Table 1: Policy Framework), Legal Framework (Err por Reference source not found.2), Institutional Framework (Table 3), Social Statutes (Table 4: 4) and WB ESF (Table 5) and other relevant Good International Industry Practice.

4.1. Policy Framework

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<thead>
<tr>
<th>#</th>
<th>Policy</th>
<th>Provision</th>
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<tbody>
<tr>
<td>1</td>
<td>National Environmental Policy, 2013</td>
<td>The policy promotes the use of Environment assessment tools such as ESIA/EA necessary to ensure environmental quality and resource productivity on long term basis. Further it calls for management in use of hazardous and toxic chemicals as well as radiation regulations.</td>
<td>The Policy requires the project which is likely to have significant environmental and social impacts to undergo ESIA in order to establish sound environmental management practices.</td>
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<tr>
<td>2</td>
<td>The National Occupational Safety and Health Policy, 2012</td>
<td>The Policy seeks to reduce the number of work-related accidents and diseases, and equitably provide compensation and rehabilitation to those injured at work or who contract occupational diseases.</td>
<td>The policy requires the provision of appropriate and adequate PPE, avail First Aid services on site as well as development of Safety and Health Emergency Contact at the site and workplace registration.</td>
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<td>3</td>
<td>Kenya Health Policy 2014 – 2030</td>
<td>The Policy aim is to achieve this goal through supporting provision of equitable, affordable, and quality health and related services at the highest attainable standards and minimize exposure to health risk factors to all Kenyans.</td>
<td>The Policy calls for the provision and distribution of healthcare services to all people that is commensurate with that of a middle-income country without segregation.</td>
</tr>
<tr>
<td>4</td>
<td>National Plan on Healthcare Waste Management 2016-2021</td>
<td>Provides a viable technical and management options as well as a roadmap for the domestication of the National HCWM Strategic Plan 2015 -2020. Strategic planning for HCWM covers waste handling, storage, transportation, treatment, and disposal, capacity-building and awareness creation. This prevents, reduces and mitigates the likely risks of transmission of infections.</td>
<td>The hospital having an isolation ward has potential to generate more infectious waste posing danger to the workers and public; thus, the critical need for proper handling and management of waste associated with COVID-19 project.</td>
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<td>5</td>
<td>National Guidelines for the Management of COVID -19 Wastes, 2020</td>
<td>The Environmental Management and Coordination (Waste Management) Regulations of 2006, has clear provisions on the management of Biomedical waste. The provisions relate to segregation of biomedical waste, securing, packaging, storage and disposal of all generated medical waste within the country, to ensure proper waste disposal the main methods used are incineration, shredding, and chemical disinfection. To help implement the regulations, NEMA developed the guidelines to manage COVID-19 wastes.</td>
<td>The increased use of the safety materials against COVID-19 has led to massive generation of waste that can be considered as infectious waste (15%). These protective and safety materials are used within the hospital especially the single use face masks resulting in increased waste generation which if not well addressed could pose both cross infections and environmental risk.</td>
</tr>
<tr>
<td>6</td>
<td>Proposed guidelines on Planning and Design of COVID-19 Quarantine and Treatment Centres, and Long-Term Infrastructural Interventions for the Kenyan Context, 2020</td>
<td>The objective is to provide quick and innovative infrastructure guidelines to public and private health care sector players in response to COVID-19. It gives the space consideration, site selections, planning considerations and innovative solutions for the quarantine / isolation areas. It further emphasizes the need to provide housing that meets the minimum public health requirements for habitation in both formal and informal settlements in order to meet social distancing;</td>
<td>The waste treatment equipment shed design shall adopt the space consideration, site selections, planning considerations and innovative solutions that meet minimum public health requirements.</td>
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4.2. Regulatory Framework

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<th>#</th>
<th>Legislation</th>
<th>Provision</th>
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<tbody>
<tr>
<td>1</td>
<td>The Constitution of Kenya, 2010</td>
<td>Article 42 of the Bill of Rights of the Kenyan Constitution provides that ‘every Kenyan has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures. Part 2 of Chapter 5 is dedicated to Environment and Natural Resources where Article 69 in Part 2 provides that the state shall; (v) Establish systems of environmental impact</td>
<td>The project should ensure compliance with the Constitution on issues of environmental protection and safeguard of public health through provision of more comprehensive health services to every citizen.</td>
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<th>Legislation</th>
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<tr>
<td>2.</td>
<td>National Infection Prevention and Control Guidelines for Health care services, 2015</td>
<td>Provides comprehensive standardized information regarding the prevention and control of transmissible infections. It acts as a central reference for all health care facilities and healthcare workers. The guideline is intended to provide administrators and Health Care Workers with the necessary information and procedures to implement Infection Prevention Control (IPC) core activities.</td>
<td>The guidelines shall be reference for all health care workers with the necessary information and procedures of managing, handling and disposal of HCW to avoid infections. The installation and operationalization of the Incinerator will help reduce the volume of untreated infectious wastes left in the open at Hospital.</td>
</tr>
<tr>
<td>3.</td>
<td>Environmental Management and Coordination Act, 1999 (Amendments 2015)</td>
<td>The Act empowers the National Environment Management Authority (NEMA) to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of government in the implementation of all policies related to the environment. The Second Schedule to the Act specifies the projects for which an ESIA or environmental audit must be carried out.</td>
<td>The project shall comply with the provisions of this regulation on issues related to, environmental assessment, solid waste and wastewater management, aerial emissions, noise and vibrations among others.</td>
</tr>
<tr>
<td>4.</td>
<td>Environmental (EIA and EA) Regulations, 2019</td>
<td>This regulation provides guidelines to govern the conduct of Environmental Assessment and Audits in Kenya. Section 3 indicates that the regulations apply to policies, plans, programs, projects and activities specified in Part IV, Part V and 2nd schedule of the Act.</td>
<td>Environmental Assessment is being carried out for the project and appropriate mitigation measures shall be proposed commensurate with the scale of the project E&amp;S aspects.</td>
</tr>
<tr>
<td>5.</td>
<td>Environmental Management and Coordination (Waste Management) Regulations, 2006</td>
<td>The regulations provide guidelines on waste management (handling, storage, transportation, treatment and disposal) of various waste streams including: domestic waste, industrial waste, hazardous and toxic waste, pesticides and toxic substances, biomedical wastes; and radioactive wastes.</td>
<td>The project will generate highly infectious waste (15-25%) as a result of management of COVID-19 cases from wards and hence expected to comply with the requirements of this regulation in management of medical wastes. The proponent must observe this law strictly in the management of HCW generated from the COVID-19 designated health facilities as well as in its operation of MWTI by applying for the necessary licenses to operate the waste treatment equipment.</td>
</tr>
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<td>6.</td>
<td>Environmental Management and Coordination (Air Quality) Regulations, 2014</td>
<td>Provide for the prevention, control and abatement of air pollution to ensure clean and healthy ambient air. Part II sections 5 to 9 prohibits compromise of the ambient air quality levels specified in the first and third schedules of the regulations. Section 11 of the regulations prohibits offensive emissions into controlled areas (national parks, schools, hospitals, residential areas and populated urban centres) Section 33 prohibits any person from causing/allowing emissions of particulate matter during demolition of structures. Section 34 prohibits any person from allowing stock piling of material to cause effect to ambient air quality, section 35 prohibits operators of the incinerators to cause emission of air pollutants as set out in second schedule in excess of mass emission rates indicated in third schedule of the act.</td>
<td>The Management of the Hospital will apply for the license own and operate MWTI, which is lacking for the currently used MWTI. During operational phase of the MWTI, no waste will be left for long at the waste treatment area so as to start producing bad odour. The hospital management will be required to undertake periodic air quality monitoring around the incinerator as well as change scrubbers installed on a periodic basis.</td>
</tr>
<tr>
<td>7.</td>
<td>Environmental Management and Coordination (Water Quality) Regulations, 2006</td>
<td>The regulation provides guidelines for the protection of sources of water for domestic use, water for industrial use and effluent discharge as well as water for agricultural use. Part II section 6 prohibits any person from discharging effluent from sewerage works, industry or other point sources into aquatic environment, abstract ground water near lakes, rivers, streams, springs and wells that is likely to have any adverse impact on quality and quantity of the water without an environmental impact assessment license.</td>
<td>The proponent will ensure that the appropriate measures to prevent pollution of underground and surface water sources are implemented in all project phases such as channelling all wastewater effluent from the waste treatment area to the sewer system and undertake periodic monitoring of the waste effluent from the health facilities to ensure compliance with the acceptable standards. Necessary water supply or wastewater discharge permits, and compliance with such permits shall also be sought.</td>
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<td>8.</td>
<td>EMCA (Noise)</td>
<td>Part II section 3(1) of these Regulations states that: no person</td>
<td>The contractor will be required to take into</td>
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<td></td>
<td>and Excessive Vibration Pollution) Regulations, 2009</td>
<td>shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment and section 3(2) states that in determining whether noise is loud, unreasonable, unnecessary or unusual depends on; (i) the time of the day, (ii) proximity to residential area (iii) whether the noise is recurrent/constant, level/intensity of noise.</td>
<td>consideration monitoring of the noise and vibrations levels within the hospital during construction period to ensure compliance.</td>
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<td></td>
<td>Public Health Act (Cap 242) revised 2012</td>
<td>Part III of the Public Health Act provides for the protection of human health through prevention and guarding against introduction of infectious diseases into Kenya from outside, to promote public health and prevention, limitation or suppression of infectious, communicable or preventable disease within Kenya. The Public Health (Prevention, Control and Suppression of Covid-19) Rules, 2020 provides additional regulatory impetus to this part.</td>
<td>The installation at the hospital has both direct and indirect implication to the health workers and neighbouring communities especially with regard to the movement of labour and associated COVID-19 threats. The contractor is required to abide by these provisions throughout the project cycle. COVID-19 Prevention, Control and Suppression measures shall be adhered to by all the workers.</td>
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<td></td>
<td>The Health Act, 2017</td>
<td>An Act of Parliament to establish a unified health system, to coordinate the inter-relationship between the national government and county government health systems, to provide for regulation of health care service and health care service providers, health products and health technologies and for connected purposes including the provision of emergency and specialized care. The Act requires that the national health system ensures that measures for managing environmental risk factors to curtail occurrence and distribution of diseases are put in place and implemented. The Act also requires the state to ensure access to healthcare services for vulnerable groups by making clear the state’s obligation to provide these for women, the aged, persons with disabilities, children, youth, and members of minority or marginalized communities The Act also requires the National Government Department of Health to formulate national strategic and operation policies that provide for measures that include strengthening infection prevention and control systems including health care waste management in all health facilities.</td>
<td>The project management, the benefitting facility and the contractor shall ensure part VIII sections 68 to 72 of the Act which relates to the promotion and advancement of public and environmental Health are adhered to during the project implementation. In addition, the collaboration between MoH and the County Government of Garissa in the implementation of the MWIT is well within the provisions of this Act. All interests of the aged, women, children and PLWD should be observed in the implementation and operation of the project via the provision of PLWD friendly facilities, protecting the welfare of children, respecting women and the aged. The MWIT is being developed in support of policies and plans to strengthen infection prevention and control systems, particularly HCWM</td>
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<td></td>
<td>Physical and Land Use Planning Act of 2019</td>
<td>The County Governments are empowered to prohibit or control the use and development of land and buildings in the interest of proper and orderly development of an area.</td>
<td>Management of the Hospital is required to seek developments approval from the County Physical planning departments for the civil works (construction activities).</td>
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<td></td>
<td>Work Injuries Benefits Act, 2007</td>
<td>This act provides for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes.</td>
<td>The contractor and the management of the Hospital shall comply with part II of this act with regard to obligations of the employer including Compensation for temporary, total or partial disablement, treatment as well as provision of first Aid Services to workers at all times.</td>
</tr>
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<td></td>
<td>Occupational Safety and Health Act, 2007</td>
<td>This is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces. It applies to all workplaces where any person is at work, whether temporarily or permanently</td>
<td>All Safety and Health measures should be put in place to ensure workers and the neighbouring communities are not exposed to Safety and Health risks during project construction, operational and decommissioning phase namely: provision of appropriate PPE, training of workers, appointing health and safety committees and safety advisory where there are civil works, keeping incident logs and reporting to DOSHS and WB, registering the work place and screening off active construction site.</td>
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<td></td>
<td>HIV/AIDS Prevention and Control Act, 2006</td>
<td>Part 11 Section 7 requires HIV and AIDs education in workplaces; specifically, provision of basic information and instruction on HIV/AIDS prevention and control</td>
<td>During construction/installation phase, the contractor is expected to create awareness to the employees and local community on issues related to HIV/AIDS.</td>
</tr>
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<td></td>
<td>The County Government Act No. 17</td>
<td>Part II of the Act empowers the county governments to be in charge of planning by coordinating and ensuring integrated planning within the County.</td>
<td>Management of the Hospital is required to seek developments approval from the Garissa County Physical Planning department for the civil works</td>
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<td>#</td>
<td>Legislation</td>
<td>Provision</td>
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<tr>
<td>16</td>
<td>National Construction Authority Act, 2011</td>
<td>The National Construction Authority Act 2011 seeks to regulate the construction industry and coordinate its development</td>
<td>Management of the Hospital (MoH) shall liaise with NCA to ensure licensed contractors are the ones to be awarded contract to construct and install the incinerator at the hospital.</td>
</tr>
<tr>
<td>17</td>
<td>The National Council for Disability Act, 2003</td>
<td>An Act to provide for the establishment of a National Council for Disability, its composition, functions and administration for the promotion of the rights of persons with disabilities set out in international conventions and legal instruments, the Constitution and other laws, and for other connected matters.</td>
<td>People with disability interest including access to the HCFs will be catered for including the ramp, ablution and WASH facilities, as well as access to employment and healthcare services.</td>
</tr>
<tr>
<td>18</td>
<td>The Employment Act 2007</td>
<td>The Act stipulates that no person shall use or assist any other person, in using forced labour. The Act further states that it shall be the duty of the Cabinet Secretary/Minister, Labour officer, the National Labour Court and the subordinate labour courts to; Promote equality of opportunity in employment in order to eliminate discrimination in employment Promote and guarantee equality of opportunity for a person who, is a migrant worker or a member of the family of the migrant worker lawfully within Kenya. Other clauses include the right and Duties of employment including the basic minimum and condition of contract including the Maternity Leave.</td>
<td>The proponent, contractor and the employees to be engaged in the proposed project stands guided on labour relations that at times have negative and detrimental impacts on project implementation if poorly handled.</td>
</tr>
<tr>
<td>19</td>
<td>The climate Change Act, 2016</td>
<td>The Acts provide for a regulatory framework for enhanced response to climate change; to provide for mechanism and measures to achieve low carbon climate development, and for connected purposes.</td>
<td>MOH shall ensure that the MWTI technology to be installed at the HCF, meets the latest Stockholm incineration emission targets in order to help in reducing on the release of greenhouse gases into the atmosphere in line with the requirements of the Act to achieve low carbon climate development.</td>
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### 4.3. Compliance to Applicable Kenya EHS Regulatory Requirements

The HCF is not fully compliant to applicable Kenya EHS regulatory requirements on issues related to medical waste treatment and disposal. There is therefore need to ensure that the HCF adhere to the full extent of all applicable EHS regulatory requirements as laid out in the EMCA, 1999, the OSHA, 2007 and other sectoral laws.

Important also to note is that the Proponent will be required to ensure that this ESIA ESMP forms part of the contract document and that the main contractor prepares a contractor specific Environment and social management plan that includes adequate measures to promote safety and health of workers and community during the construction phase of the proposed MWTI. The contractor is expected to handle issues of occupational health and safety and community health and safety especially during construction phase of the project while the proponent handle the same issues during the operational phase.

#### 4.3.1. Specific EHS Permits/Authorizations/Reporting Needed for the Construction/Installation Activities at GCRH

- ESIA License from NEMA to construct and install the MWTI.
- Registration of the project with the National Construction Authority
- Development approval/permits from the Garissa County Physical planning departments for the civil works (construction and renovation activities).
- Report any accident that has occurred during construction and installation to the Directorate of Occupational Health and Safety Service within 7 days from the date of occurrence or receiving notice.

#### 4.3.2. Specific EHS Permits/Authorizations/Reporting Needed for the Operation of the MWTI

- A license to own and operate the MWTI from NEMA;
- A license of the existing incinerator after refurbishment and upgrading by the county or the project.
- Periodic stack emission testing and analysis as provided for by the Air Quality Regulations of 2014

### 4.4. Institutional Framework

Some of the institutions relevant to the proposed project are presented on Table 3 below:

<table>
<thead>
<tr>
<th>Table 3: Institutional Framework</th>
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<tr>
<td><strong>Institutional Framework</strong></td>
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<td>5.</td>
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### 4.5. Relevant Social Statutes

The key social aspects of this project include inclusion, including the GBV/SHEA prevention, stakeholder engagement and feedback mechanism including GRM.

Table 4: Relevant Social Statutes

<table>
<thead>
<tr>
<th>Social element</th>
<th>Legal/Regulatory framework</th>
<th>Institutional framework</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public participation and consultation</td>
<td>- CoK, 2010, Article 10(2) a, b - County Public Participation Guidelines§</td>
<td>- Every state actor is required to apply the national values and principles whenever they formulate, implement or interpret laws and policies - A complementary right is the right to access information in Article</td>
<td>The project will put measures in place to consult communities on the project. The use of alternative means of consultation such as call-in will to be used to engage communities CoK 2010 confers all the sovereign power to the people of Kenya and it is exercised through delegated power by the State</td>
</tr>
</tbody>
</table>

§ County Public Participation Guidelines, pg. (vii)
Grievance redress mechanism
- Employment Act in Part XII
- Employment and Labour Relations Court Act
- Labour Relations Act
- State Department of Labor (MLSP)
- National Employment Authority
- Kenya National Labor Board
- Wages Council(s)
- Directorate of Occupational Safety and Health Services
- National Council for Occupational Safety and Health (NACOSH)
- Commission for the Administration of Justice
- Ministry of Health

Inclusivity
- Disability Act 2003
- National Gender and Equality Act, 2011
- National Council for Persons with Disabilities
- Department of Social Development
- National Gender & Equality Commission

Child protection
- The Children’s Act
- Constitution of Kenya (Art 53 (b) and Art. 260)
- The Department of Children Services
- Department of Labour

There is need have an elaborate GRM that will allow the PMT to manage grievances related to the project especially for the workers. However, in case the complainant is dissatisfied with the decision made, he/she can make use of any of other institutions with a mandate to address disputes.

There is need to ensure that civil works is sensitive to the accessibility rights for PWDs.

There is need to verify ages for contractor works to ensure prevention of child labour risks in the project.

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4.6. World Bank Environmental and Social Standards (ESSs)
The World Bank ESSs will help the Bank to manage the risks and impacts of the projects, and improve their environmental and social performance, through a risk and outcomes-based approach. This will ensure that proposed programs are environmentally and socially sustainable, and thus improve decision-making. The relevant ESSs to the project are outlined below:

Table 5: World Bank ESSs relevant to the project

<table>
<thead>
<tr>
<th>#</th>
<th>ESSs</th>
<th>Relevant</th>
<th>Reason</th>
</tr>
</thead>
</table>
| 1. | ESS1: Assessment and Management of Environmental and Social Risks and Impacts | X | Environmental Assessment (EA) is used in the WB to identify, avoid, and mitigate the potential and actual negative environmental impacts associated with Bank lending operations. Environmental and Social risk associated with the project was initially classified as “High” risk since Kenya has limited experience in managing the highly infectious medical waste, however, this has since been downgraded to substantial owing to the capacity put in place to manage such risks by the Project management.
The project could also cause significant environment, social, Safety and Health risks due to the dangerous nature of the pathogen (COVID-19) and reagents and other materials to be used in the project-supported laboratories and quarantine facilities. Healthcare associated infections due to inadequate adherence to occupational Safety and Health standards can lead to illness and death among health and laboratory workers.
Failure to undertake the necessary precautionary measures will lead to more infections and it is general knowledge that Covid-19 causes irreversible health conditions and deaths in the worst eventuality. It is therefore appropriate for all the potential social and environmental risks and impacts to be identified and the necessary mitigation measures formulated prior to the implementation of the proposed construction/installation of the waste treatment areas because the MWTI is meant to manage infectious and highly infectious wastes from the Covid-19 centre as well as from the entire hospital operations.
Environmentally and socially sound healthcare will require adequate provisions for minimization of occupational Safety and Health risks, proper management of hazardous waste and sharps, use of appropriate disinfectants, proper quarantine procedure for COVID-19, appropriate chemical and infectious substance handling. |
| 2. | ESS2: Labor and Working Conditions | X | Most activities supported by the project will be conducted by health workers, i.e., civil servants employed by the Government of Kenya as well as the contracted workers for the Contractor. All workers will have orientation on and sign a code of conduct on expected behaviour and safety standards including GBV/SEA risks.
In line with ESS2 as well as the Kenyan law, the use of child labour and forced labour is |

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6 Article 35(1)(a) and (b)
7 Article 1 of the Constitution of Kenya
prohibited in the project, both for construction and operation of healthcare facilities. The project will also ensure a basic, responsive GRM to allow workers to quickly inform their immediate management of labor issues, such as a lack of PPE and unreasonable overtime as well as to the national grievance hotline to the MoH. OHS risks related to medical waste management including thermal injuries while operating incinerators, sharps-inflicted injuries and disease infections. The waste handlers and incinerator operators will be provided with adequate and appropriate personal protective equipment, provision of sanitation facilities (toilets and wash areas separate for women and men), provision of fire-suppression equipment guidance on operation and maintenance of the equipment, training and capacity building on OHS measures, infection prevention and control and medical waste management to healthcare workers, waste handlers and MWTI operators.

3. ESS3: Resource Efficiency and Pollution Prevention and Management

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<th>Reason</th>
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<tr>
<td>Medical and chemical waste (including waste water, reagents, infected materials, etc.) from the COVID-19 isolation centre and handling of HCW can have significant impact on environment and human health. Waste that may be generated from the hospital may include liquid contaminated waste, chemicals and other hazardous materials, and other waste from labs including of sharps, used in diagnosis and treatment and COVID-19 vaccination. This ESIA has been prepared and identified the possible ways to prevent and mitigate the potential pollution to the environment see Table 8.2 (ESMP).</td>
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4. ESS4: Community Health and Safety

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<tr>
<th>Reason</th>
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<tbody>
<tr>
<td>In line with safety provisions in ESS2, it is equally important to ensure the safety of communities from COVID-19 infection. Medical wastes and general waste from the hospital have a high potential of carrying micro-organisms that can infect the community at large if they are not properly disposed of. The disposal of masks and gloves at the hospital will need to be managed adequately to avoid contamination. The operation of the MWTI needs to be implemented in a way that both, the wider public, as well as the incinerator workers are treated in line with good international industry best practice. The project will ensure the avoidance of any form of Sexual Exploitation and all forms of Abuse by relying on the WHO Code of Ethics and Professional conduct for all workers in the MWTI as well as the provision of gender-sensitive infrastructure such as segregated toilets and enough light in the MWTI shelter. The project will also ensure via the above noted provisions, including stakeholder engagement, that the MWTI is operated effectively without aggravating potential conflicts between the neighbouring community and the hospital community</td>
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5. ESS10: Stakeholder Engagement and Information Disclosure

<table>
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<th>Reason</th>
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<tr>
<td>The project is being implemented by MoH which has established a structured approach to engagement with stakeholders (see Stakeholder Engagement Plan for the C-HERP). The SEP is based upon meaningful consultations and disclosure of appropriate information, considering the specific challenges associated with COVID-19. Stakeholder engagement was done during the preparation of this ESIA that brought together all key stakeholders and the outcome was positive with regard to supporting the improvement of the HCWM at the hospital through the installation of the MWTI (see chapter 5 stakeholder consultations).</td>
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The WBG general EHS guidelines contain performance levels and measures for development of projects and are considered to be achievable in facilities at reasonable costs by existing technology. WBG guidelines apply to specified project components of construction and installation of the MWTI. Among the applicable guidelines, the following points provide a summary.

a) EHS Guidelines - Waste Management

These guidelines apply to both non-hazardous and hazardous waste. They advocate for waste management planning where waste should be characterized according to: composition, source, types, and generation rates. This is essential for the hospital in relation to operation of the incinerator project since there is a need to segregate the different categories of waste generated at the overall hospital level. These guidelines call for implementation of a waste management hierarchy that comprises prevention, recycling/reuse; treatment and disposal. The guidelines require segregation of conventional waste from hazardous waste streams and if generation of hazardous waste cannot be avoided; its management should focus on prevention of harm to health, safety, and environment, according to the following principles:

i) Understanding potential impacts and risks associated with management of any generated hazardous waste during its complete life-cycle;
ii) Ensuring that people handling, treating and disposing of hazardous waste are reputable and legitimate enterprises, licensed by the relevant regulatory agencies and following good international industry practice; and

iii) Ensuring compliance with applicable regulations.

The hospital generates various quantities of hazardous and non-hazardous waste and the guidelines recommend monitoring activities to include:

i. Regular visual inspection of all waste storage, collection and storage areas for evidence of accidental releases and to verify that wastes are properly labelled and stored;

ii. Regular audits of waste segregation and collection practices;

iii. Tracking of waste generation trends by type and amount of waste generated, preferably by facility departments; and

iv. Keeping manifests or other records that document the amount of waste generated and its destination.

b) EHS guidelines - Air emissions and Ambient air quality

These guidelines are meant for all types of projects with “significant” emissions, sources of air emissions, and potential for significant impacts to ambient air quality to prevent or minimize impacts by ensuring that emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards.

In addition, Kenya currently has an Environmental Management and Coordination (Air Quality) Regulations, 2014 applicable to this project. Air emissions from incineration depend on the specific waste composition and the presence and effectiveness of air pollution control systems. Polluting emissions may include carbon dioxide (CO2), CO, NOx, Sulfur dDioxide (SO2), particulate matter, ammonia, amines, acids (HCL, HF), VOCs, dioxins/furans, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals (Hg), and sulfides, etc., depending on the waste content and combustion conditions.

c) Community Health and safety (water quality and availability, traffic safety, emergency preparedness and response),

d) EHS Guidelines - Construction and Decommissioning.

These provide additional and specific guidance on prevention and control of community health and safety impacts that may occur during new project development, at the end of the project life-cycle, or due to construction or modification of existing project facilities.

e) World Bank Guidance note on COVID-19 and CIVIL works

This guidance note provides guidance to projects on how to addressing key issues associated with COVID-19. It emphasizes the importance of; careful scenario planning, clear procedures and protocols, management systems, effective communication and coordination, and the need for high levels of responsiveness in a changing environment. It recommends assessing the current situation of the project, putting in place mitigation measures to avoid or minimize the chance of infection, and planning what to do if either project workers become infected or the work force includes workers from proximate communities affected by COVID-19.

f) Guidelines on Prevention of GBV/SEA

The WB Guidance Note on GBV/SEA in civil works describes GBV/SEA as an ‘umbrella term for any harmful act that is perpetrated against a person’s will and that is based on socially ascribed gender differences.’ Consequently, it can occur in a variety of ways, including through the infliction of physical, mental, and sexual harm or suffering threats of such acts, as well as coercion and other deprivations of liberty, such as early or forced marriage, economic abuse and denial of resources, services and opportunities, trafficking and abduction for exploitation, or Intimate Partner Violence (IPV) perpetrated by a former or current partner. Most importantly, the WB applies ‘GBV/SEA’ as an umbrella term that includes sexual exploitation and abuse (SEA).

The Bank defines SEA as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another. In Bank financed operations/projects, sexual exploitation occurs when access to or benefit from a Bank...
financed goods, works, non-consulting services or consulting services is used to extract sexual gain. Sexual abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions. Sexual harassment (SH) is understood as unwelcome sexual advances, requests for sexual favours, and other unwanted verbal or physical conduct of a sexual nature. SH differs from SEA in that it occurs between personnel/staff working on the project, and not between staff and project beneficiaries or communities. The distinction between SEA and SH is important so that agency policies and staff training can include specific instructions on the procedures to report on both. Both women and men can experience SH. The WB Guidance Note defines four key areas of GBV/SEA risks:

i. **SEA - exploitation of a vulnerable position, use of differential power for sexual purpose; actual or threatened sexual physical intrusion;**

ii. **Workplace sexual harassment - unwanted sexual advances; requests for sexual favors, sexual physical contact;**

iii. **Human trafficking - sexual slavery, coerced transactional sex, illegal transnational people movement; and**

iv. **Non-SEA - physical assault, psychological or physical abuse, denial of resources, opportunities or services and IPV.**

### 4.7. World Health Organization Guidelines for COVID-19 Prevention and Management

This section provides the highlights of the World Health Organization WHO Guidelines for COVID-19 Prevention and Management

i. **WHO Infection prevention and control during health care when COVID-19 is suspected:** Intended for health care workers (HCWs), health care managers, and IPC teams at the facility level, national, provincial and district levels. This means that all possible measures should be put in place within the HCF to prevent infection, especially from healthcare waste and in particular, adhering to respiratory etiquette and hand hygiene best practices, contact, droplet and airborne precautions, adequate environmental cleaning and disinfection; ensuring adequate ventilation; isolation facilities of COVID-19 patients; in addition, where possible, maintaining a physical distance among all individuals in health facilities of at least 1 metre (increasing it whenever feasible), especially in indoor settings.

ii. **WHO rights, roles & responsibilities of HCWs, including key considerations for OSH in COVID-19 Outbreak:** Provides specific measures to maintain rights and responsibilities of HCWs and their OSH including provision of adequate IPC and PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to healthcare or other staff caring for suspected or confirmed COVID-19 patients, such that workers do not incur expenses for occupational safety and health requirements.

iii. **WHO Water, sanitation, hygiene, and waste management for the COVID-19 virus:** Intended for water and sanitation practitioners and providers and health care providers to ensure good and consistently applied WASH and waste management at the health care facilities to help prevent human-to-human transmission of the COVID-19 virus.

iv. **WHO Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19):** Intended for those involved in distributing and managing PPE and its most appropriate use by public health authorities and individuals in health care and community settings.

v. **WHO Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19):** Aimed to offer guidance to WHO Member States on implementing quarantine measures for individuals in the context of COVID-19 outbreak.

vi. **WHO Infection Prevention and Control for the safe management of a dead body in the context of COVID-19:** Intended for those, including managers of health care facilities and mortuaries, religious and public health authorities, and families, who tend to the bodies of persons who have died of suspected or confirmed COVID-19.
5. KEY STAKEHOLDER CONSULTATION AND PUBLIC PARTICIPATION

5.1. Introduction
The World Bank’s ESF, the Constitution of Kenya (2010), Legal Notice No. 101 the Environmental (Environmental and Social Impact Assessment and Audit) Regulations, 2003 (Revised in 2016), the Legal Notice Number 31 read together with Legal Notice Number 32 of 2019 and the EMCA (Amendments) 2015 require that the views of persons who may be affected by a proposed project be sought during the process of conducting an ESIA. The MoH has also developed a SEP for the project, which defines the stakeholder engagement process, including public information disclosure and consultation, throughout the project cycle. For this particular ESIA, Stakeholder and Public Participation was accomplished via a public meeting held at Garissa County Referral Hospital on the 17th December 2020. The meeting was attended by stakeholders from the Department of Public Health of Garissa County Government, representatives of the surrounding residential and business communities. Fifteen (15) participants (13 male and 2 female) were present. (Minutes to the meeting and the attendance list are attached to this report as appendix 8 and 9, respectively).

5.2. Goals of Stakeholder Consultations
The primary goals of the consultation process were to:

a. Ensure transparency and involvement of stakeholders in assessing and managing the potential environmental and socioeconomic impacts of the project;

b. Help manage risks, concerns and public expectations through ongoing dialogue with stakeholders; and

c. Improve decision-making and build understanding by actively involving key project stakeholders and PAPs in two-way communication. Through this process, the implementing agencies will better understand the concerns and expectations of the stakeholders, beneficiaries and PAPs, and the opportunities to increase project value to the local community.

5.3. Objectives of Stakeholder Consultation
The consultations with stakeholders and communities were carried out to specifically achieve the following objectives:

a. To provide information about the proposed project and to collate stakeholder information on key environmental and social baseline information in the project area;

b. To provide opportunities to the stakeholders and communities to discuss their opinions and concerns respectively and get a full appreciation of their expectations;

c. To solicit the stakeholders’ views on the proposed project and discuss their involvement in the various project activities;

d. To discern the attitudes of the community and their leaders towards the proposed project so that their views and proposals are taken into consideration in the formulation of mitigation and benefit enhancement measures;

e. To identify specific interests of and to enhance the participation of the poor and vulnerable groups; and

f. To inform the process of developing appropriate mitigation measures as well as institutional arrangements for effective implementation of the project.

5.4. Summary of Public Consultations Findings
During the stakeholder and public consultation meeting, the following are the matters that were discussed in brief.

<table>
<thead>
<tr>
<th>Name of stakeholder</th>
<th>Issue raised</th>
<th>Response given</th>
</tr>
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<tbody>
<tr>
<td>The Sub-County PHO</td>
<td>Death of Livestock: The sub county PHO raised the issue of complaints received from livestock owners close to the town that have been reaching the PHO’s office were in relation to cows and goats dying after feeding on waste remains from the HCW disposal site</td>
<td>The hospital administrator admitted that the hospital needed to have ensured that the wastes were treated before the animals accessed the site and fencing done to deter entry of livestock to the waste disposal area. The reason given for open disposal of the HCW was the high volume of wastes received from the GCRH and other surrounding HCF, was averaging 1700kg per day against the current incinerator which can only handle an average of 500kg per day if operated for 12 hours.</td>
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<tr>
<td>The Hospital PHO</td>
<td>Overworking of the current MWTI: the current 6-year old incinerator was reported as being overworked with no adequate time to run maintenance servicing. Consequently, it had</td>
<td>To address the challenge, the medical engineer requested if they could be supported with a HCW treatment facility that can treat at least 150kg of HCW per hour to enable treatment of the high volume of wastes from the hospital and nearby HCF. The ESIA Experts clarified that the MoH</td>
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started emitting a lot of smoke. will be supporting the hospital with a 75kg/hr rating modern MWTI, which if supplemented with the current MWTI, will be able to treat a total of 125kg/hr translating to 1000kg/hr. The Expert underscored the need to adequately segregate the waste to free organic wastes and reduce the volume of wastes requiring treatment. The two will most likely be able to treat the HCW effectively without necessarily overworking the MWTIs.

Ms. Amina, a community member from Bulla Skadeg: Fencing of the HCWM area: She suggested that the proposed project should ensure that there is proper fencing off of the HCWM site, probably with a concrete perimeter wall complete with burglarproof lockable gate. The ESIA Experts responded that a standard MWTI should come with a perimeter fence, even if not a perimeter wall, but at least a chain-link fence complete with a lockable gate. The hospital administrator also assured that the hospital barbed wire fencing would be repaired to keep livestock away from the hospital and limit the trespassing.

The Hospital PHO: Construction of well paved routes from the hospital to the HCW treatment area: There was also a suggestion that the project ensures construction of well paved routes from the hospital to the HCW treatment area so as to ensure that the waste collectors make use of the wheeled trolleys within the hospital. Such will prevent the dropping of HCW from wheelbarrows.

The current incinerator operator: Need for more Incinerator Operators: He indicated the need for additional staff to enable his off-days and ensure he works for 8 working hours as per his employment terms. He also suggested the need for training on the MWTI operations.

The Medical Superintendent: Appreciated the support from the MoH: He was happy that the proposed project was said to produce harmless smoke given that it will be fitted with an air scrubber considering their proximity to a school and residential properties.

The photo below shows consultation attendees during the consultation meeting.

5.5. Conclusion of Stakeholder Engagement
The stakeholders present reaffirmed their support for the proposed project owing to its value in addressing the present waste management challenges including infectious COVID-19 wastes. There was therefore consensus among the stakeholders to fast-track the implementation of the proposed MWTI especially due to the escalating cases of COVID-19 infections. The stakeholders underscored the need for functional feedback and grievance redress mechanisms within the facility to allow all stakeholders raise their concerns and get feedback. The facility should therefore assess and strengthen the existing system to make it more responsive to the public and in line with the CHERP requirements.
6. ANALYSIS OF PROJECT ALTERNATIVES

This section analyses the projects alternatives in terms of site, technology, scale and waste management options. The proposed project site has been chosen after consideration of several factors including space for such a project, hospital layout, water supply, and sewer line connection within the hospital. Thus, the proposed site is the best suited for construction and installation of the proposed MWTI Project.

6.1. Relocation Option

Relocating the proposed project to an alternative site is not a viable option. This is because the proposed installation of a MWTI is meant to assist in the efficient management of HCW from the operations at GCRH which is a designated COVID-19, treatment facility within which it is being installed. Relocation would also require acquisition of alternative land for the facility. Such a scenario would mean going through the tedious procurement process. If the MWTI is constructed away from the HCF, it will also mean that the hospital would need to acquire a vehicle fully licensed by NEMA for transportation of the medical waste generated, making the whole process inconvenient, inefficient, and prone to additional health and safety risks. The siting of the MWTI will be next to the existing HCWM area, which is well isolated from the rest of the hospital facilities hence it can easily and properly be fenced off from the other hospital activities, hence being the most appropriate. The space within the site is also enough for the equipment housing, and so will not require decommissioning of the existing structures within the area nor require relocation because of inadequate space.

6.2. The No Action Alternative

This alternative describes a situation where the proposed project is not allowed to be undertaken. In case this happens, positive impacts associated with the proposed development will not accrue to the stakeholders including the hospital, the environmental and public health advocates, the development consultants, contractors and suppliers of materials. Although from an extreme environmental and social management perspective, the “No action alternative” will be beneficial in the sense that any potential negative impacts associated with the project implementation will be avoided, the “No Action Alternative” should not be adopted, as there is need to encourage installation of adequate HCWM equipment to address the current HCWM challenges and mitigate public health related risks associated with poor medical waste management.

6.3. Incineration through a new MWTI

Incineration is a high-temperature dry oxidation process that reduces organic and combustible waste to inorganic, incombustible matter and result in very significant reduction of waste volume and weight. This process is usually selected to treat waste that cannot be recycled, reused or directly disposed off in sanitary landfill. As is the case with the proposed MWTI, most modern incinerators operate under high temperatures to combust and reduce waste to ashes, and eliminate pathogens. Scrubbers are also fitted on the incinerators to clean the exhaust gases and limit the atmospheric pollution and odours produced by the incineration process.

a) Advantages of incineration include:

- Accept the greatest variety of waste as specified in sub section 2.4.3 (d) of this report,
- Treated waste is un-recognizable as ash,
- Significant volume reduction,
- Energy recovery is possible,
- Waste is totally sterilized.
- Trained personnel readily available,
- Existing guidelines in place,
- Cheaper to install compared to other methods like autoclaves.

b) Disadvantages include:

- Release of acidic gases into the air/ Converting biological problem into potential air quality emission problems,
- Heavy metals in ash residues,
- Major source of dioxin and furan emissions if incomplete combustion is allowed.
- Expensive to maintain and monitor
Because of the many advantages of incinerators including that they can treat the greatest variety of waste, significantly reducing the volume of wastes, trained personnel are readily available and that they are cheaper to install, this method is considered as a viable option provided the mitigation measures provided in this ESIA report are fully exercised.

6.4. Analysis of Alternatives to Incineration

6.4.1. Sanitary Landfill
Properly constructed and operated landfill sites offer a relatively safe disposal route for most wastes including HCW. The priority is protection of the water aquifers and each day's waste is compacted and covered with soil to maintain sanitary conditions. Nevertheless, this method could not also be considered because it requires a large space as well as specialized machines for compaction of each day’s waste.

6.4.2. Open Burning of HCW
Burning HCW at low temperatures in the open should be discouraged because this is an illegal practice that results to release of toxic pollutants into the air. Although it is being practised at the GCRH, this method is totally discouraged and should be avoided at all costs just the same way as is the case of open dumping.

6.4.3. Microwaving
Microwave technology of managing HCW is considered an alternative technology of incineration. This is a steam-based process, and electromagnetic waves with frequencies between radio and infrared waves that use steam inside the wastes or by additional steam to sterilize wastes and destroy infectious agents and pathogenic organisms in the waste. So, it includes the use of high-intensity radiation to heat the moisture inside the waste. The types of waste generally treated in incinerator systems are same as to those treated in microwaves.

   a) Advantages of Microwaving include:
   • Technology is easy to install and operate,
   • Reduces HCW volume by up to 80%,
   • Environmentally friendly due to lack of release of smoke and other pollutants such as dioxins, hence its emissions, if any are minimal
   • Minimal liquid effluents, and
   • No danger of explosion as is the case with autoclaves as it does not make use of pressure

   b) Disadvantages include:
   • Its investment cost is very high
   • Produces offensive odours within the sheds;
   • Volatile and semi-volatile organic compounds, chemotherapeutic waste, mercury, other hazardous chemical waste and radiological waste should not be treated in a microwave; and
   • It produces waste material that will need further disposal; hence need to invest in other items such as dedicated specialized waste transportation vehicles. In some cases, the public may not accept the disposal of HCW into the municipal dumpsites regardless of whether it is treated hence leading to conflicts

This method could not be considered given that it will need further investment in items such as specialized waste transportation vehicles. The technology was also not recommended by the stakeholders consulted.

6.4.4. Autoclaves
An autoclave consists of a metal chamber sealed by a charging door and surrounded by a steam jacket. Steam is introduced into both the outside jacket and the inside chamber which is designed to withstand elevated pressures. Heating the outside jacket reduces condensation in the inside chamber wall and allows the use of steam at lower temperatures. Because air is an effective insulator, the removal of air from the chamber is essential to ensure penetration of heat into the waste. This is done in two general ways: gravity displacement or pre-vacuuming. A gravity-displacement (or downward-displacement) autoclave takes advantage of the fact that steam is lighter than air; steam is introduced under pressure into the chamber, forcing the air downward into an outlet port or drain line in the lower part of the chamber.
a. **Advantages of Autoclaves:**
- Steam treatment is a proven technology with a long and successful track record;
- The technology is easily understood and readily accepted by hospital staff and communities;
- It is approved or accepted as an alternative technology in all states;
- The time-temperature parameters needed to achieve high levels of disinfection are well-established;
- Autoclaves are available in a wide range of sizes, capable of treating from a few pounds to several tons per hour;
- If proper precautions are taken to exclude hazardous materials, the emissions from autoclaves are minimal; and
- Many autoclave manufacturers offer many features and options such as programmable computer control, tracks and lifts for carts, permanent recording of treatment parameters, autoclavable carts and cart washers; and shredders.

b. **The disadvantages include the following:**
- They are too expensive to install and maintain;
- The technology does not render waste unrecognizable and does not reduce the volume of treated waste unless a shredder or grinder is added;
- Any large, hard metal object in the waste can damage any shredder or grinder which are costly to replace/repair;
- Offensive odours can be generated but are minimized by proper air handling equipment;
- If hazardous chemicals such as formaldehyde, phenol, cytotoxic agents, or mercury are in the waste, these toxic contaminants are released into the air, wastewater, or remain in the waste to contaminate the landfill;
- If the technology does not include a way of drying the waste, the resulting treated waste will be heavier that when it was first put in because of condensed steam;
- Barriers to direct steam exposure or heat transfer (such as inefficient air evacuation; excessive waste mass; bulky waste materials with low thermal conductivities; or waste loads with multiple bags, air pockets, sealed heat-resistant containers, etc.) may compromise the effectiveness of the system to decontaminate waste;
- They require highly trained personnel to implement; and
- There is danger of explosion.

Though modern, this method was found to be too expensive to install and maintain since they are not common, and that they require highly trained personnel to implement, who are hard to find in the country and more so in hard to reach areas. This, in addition to the above disadvantages rendered the technology not a viable option for consideration.

6.5. **Comparison of Alternatives**
The proposed project is the best alternative since it will provide a modern medical hazardous waste treatment facility within the hospital leading to improved environmental and reduced public health risks. According to many studies, incineration methods are mostly used among the technologies for healthcare waste treatment in most countries including Kenya. Therefore, opting for incineration against the other waste treatment options is well within the standards for HCWM and favourable for this health facility.
7. POTENTIAL ENVIRONMENT AND SOCIAL IMPACTS IDENTIFICATION AND MITIGATION MEASURES

7.1. Introduction
The activities to be undertaken during implementation process and operation of the MWTI are associated with several potential impacts. The potential impacts examined under two categories:

- Negative environmental and social impacts and
- Positive environmental and social impacts.

The various impacts in these two categories are examined in order of their level of importance and significance. They are also examined in categories of their time of occurrence (pre-construction/design, construction, operational or decommissioning phase).

7.2. Potential Impacts During Planning and Design Phase

7.2.1. Potential Positive Impacts During Planning and Design Phase

a) Employment Opportunities
The proposed project at this stage is likely to generate employment opportunities especially for professionals such as engineers, surveyors, environmentalists, hydro-geologists and social scientists, among others.

b) Creation of Awareness
Awareness improves civility in project planning, implementation and operations. This is a sure formula for ensuring there is social acceptability that leads to ownership and sustainability of the project. Awareness was done through consultations on different aspects of the project with the key stakeholders.

7.2.2. Potential Negative Impacts During Planning and Design Phase
It is envisaged that there will be minimal to no negative impacts during the planning and design stage. However, there can be poor designing and siting of especially the MWTI shelter.

Proposed mitigation measures:
As noted above, impacts during this phase of the project are not significant. However, the design team and key stakeholders shall take necessary measures to document any concerns and incorporate appropriate measures to mitigate the impacts in the final designs and implementation process. The design of the MWTI should provide for amenities such as sanitary conveniences, office space, store for materials and equipment, temporary HCW storage area well aerated but free from access by scavenging animals and birds, perimeter fencing, adequate ash pit, emergency alarm system and fire-fighting equipment. The design team, Environment and Social experts shall take the necessary measures to mitigate risks through:

- Liaising with the relevant technical government departments in development of the designs;
- Proper siting of the waste treatment facility and ensuring harmony with the hospital layout and planning;
- Ensure all the legally required permits such as getting the designs approved, acquiring the ESIA License prior to undertaking the construction activities;
- The contractor bidding documents should contain clauses on Environmental Social Health and Safety (ESHS) requirements to guide the contractor on the key requirements;
- Project Management Team (PMT) specifically the Environmental and Social Experts should ensure the design requirements are adhered to in the planning stage; and
- Ensure the stakeholders are aware of the initiation of the project and the plans under way.

7.3. Potential Impacts during Construction Phase

7.3.1. Potential Positive Impacts during Construction Phase

a) Creation of a Market for Construction materials
The contractor will utilize locally available materials for building and construction of the project. This will in turn provide a ready market for suppliers within and around the project area.

Proposed enhancement measures
- Supply of construction materials should be given to the local suppliers on a first priority.
b) Creation of Employment Opportunities
The construction works will be a source of short-term employment opportunities to the surrounding community, either as skilled or as unskilled labourers.

**Proposed enhancement measures**
- The contractor in conjunction with the local administration should give first priority to local community members so enable the community experience a direct benefit of the proposed project.

7.3.2. Potential Negative Impacts during Project Construction
The following negative impacts are associated with the construction of the proposed incinerator shed.

a) Interference with the Physical Setting
Some of the activities for shed construction will include site clearance and excavation works that will interfere with the physical setting of the project site. The selected site has a three-phase electricity connected to the area and piped water. Therefore, connection of the MWTI to electricity and water supply will not involve long trenching distances.

**Proposed Mitigation Measures:**
- It is recommended that the excavated spoil should be disposed-off in the correct manner such as reuse in landscaping, backfilling or in improvement of access roads at the health facility.
- It is advisable that any excavated sites be well secured before they could be refilled or before construction could be carried out to make them safe.
- The project designs should be such that they do not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area. Any topographical change needed should be done to avoid soil erosion or storm water drainage issues.
- The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations, hence the project as a whole should be aesthetically acceptable to blend in with the surrounding environment.
- Construction of the waste storage area should have adequate capacity to accommodate peak waste generated due to increased patient intake as a result of COVID-19 compared to normal average daily medical waste generated. Such a waste storage area should be constructed in a manner that does not allow leachate from the waste to find its way to the outside in cases of prolonged storage or access of the waste by scavengers with proper signage placed.
- Restoration shall be undertaken to ensure that the original setting is as much as possible retained; and
- The proponent should observe measures stipulated in the ESMP for sustainable project implementation.

b) Noise and Vibration Generation
Any machines used for the construction activities of the project such as excavation equipment and construction vehicles delivering materials to site are likely to emit noise. The same applies to labourers to be engaged for executing the construction activities.

**Proposed Mitigation measures**
Both the proponent and the contractor of the project shall put in place several measures that will mitigate noise pollution during the construction phase such as the following:
- Contractor to coordinate with HCF administration on acceptable days and times for work, and in particular related to any specific works that may cause more significant noise and/or for extended periods within a day.
- Install portable barriers to shield compressors and other small stationary equipment where necessary;
- Equipment’s designed with noise control elements such as those that utilize electricity as opposed to those which utilize diesel or petrol shall be widely utilized;
- Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, as well as encouraging workers to shut off vehicle engines whenever possible;
- The workers and any other person visiting the construction site shall be provided with the appropriate PPE;
- The contractor is encouraged to work during the day-time as much as possible i.e., from 8am to 5pm;
- Consider manual labour-based construction methodologies and skills as opposed to the use of heavy
machinery; and
✓ Avoiding verbal noise from the workers at the site or be kept at minimal levels possible.

c) Air Pollution (Dust and Emissions)
Excavation and related earthworks are likely to generate dust which could potentially lead to air-borne particulate matter pollution. This is likely to affect site workers, staff in the hospital and the neighboring community members, in extreme situations leading to respiratory problems.

Proposed Mitigation measures
To ameliorate these, the following mitigations measures are proposed:
✓ Contractors should wet the surfaces, use dust screens/nets during demolition activities or when dusty construction activities are occurring;
✓ The number of motorized vehicles shall be minimized as well as limit the speed to a maximum of 10km/hr;
✓ Make use of pre-marked routes to and from the project sites;
✓ Cover the stock piled construction materials and spoil generated from any excavations; and
✓ Wet all active construction areas as and when necessary to reduce dust
✓ When transporting construction material, ensure vehicles are covered with tarpaulins in order to decrease dust emissions; and
✓ Discourage burning of solid waste at project site

d) Management and disposal of spoil material generated
Construction works will involve minor earthworks and excavation which will generate some spoil. The waste spoil requires to be adequately disposed to protect the surrounding environment from being affected adversely. This can be ameliorated by observing the following measures:
✓ Re-use the excavated materials for works at the site as far as feasible to ensure that no permanent spoil dumps are created;
✓ The hospital management be consulted where loads of murrum are to be used to make good of any worn-out sections of the walkways/ driveways within the hospital;
✓ Properly disposing off the spoil in an area identified by the contractor team and approved by the confirmed land owners, hospital management as well as by NEMA. Care should be taken to avoid spoiling/ degrading land that could otherwise be used for productive purposes; and
✓ Spoil dumping should be away from any water resources to avoid possible water pollution from siltation.

e) Vegetation loss
The significance of vegetation loss during the site clearance can be minimized if care is taken to site the construction away from trees. To contain the potential negative impacts related to vegetation loss, the following mitigation measures are recommended:
✓ The contractor should properly demarcate the project area likely to be affected by the construction works;
✓ Strict control of construction vehicles to ensure that they operate only within the area to be disturbed by access routes and other works;
✓ Avoid clearance of indigenous herbaceous plants, shrubs and trees, where possible on the potential sites for screening of the visual impact; and
✓ Re-plant vegetation in the disturbed surfaces.

f) Accidental Spills and Leakages
The principal chemicals to be held on the site during the construction phase are likely to be fuel, lubricants, oil, grease, paints and pest control substances to be applied on the wooden structures and foundations. Spillage of such compounds are likely to have an immediate impact upon the local water resources (through storm water) and consequently on the terrestrial and aquatic flora and fauna. This can be checked by observing the following measures:
✓ Temporal storage in specifically designated areas on site of all hazardous/toxic substance will be in safe containers, labelled with details of composition, properties and handling information including safety data sheets and away from storm water runways or exposure to weather elements such as rains and for use only for construction works;
✓ Ensure proper storage of chemicals/materials, and if possible, in secondary containers just in case of accidental puncturing and away from storm water runways or exposure to weather elements such rains;
✓ Ensure proper handling, storage and disposal of waste oil, lubricants, oil filters and fuel from vehicles. Hazardous waste would be contained and properly disposed by licensed hazardous waste handler;
✓ The contractor should provide appropriate PPE (medical mask, gowns, heavy duty gloves, eye protection and boots) to workers on site;
✓ During the course of the construction works, temporary drainage channels should be constructed to encourage dispersal of meteoric waters;
✓ Contractor to have spill prevention and response procedure including all necessary equipment and that all workers are trained;
✓ Contractor to immediately report to HCF and Project PIU any spills or accidental releases.

g) Extraction, use and management of solid waste from construction materials
Construction materials that will be used include; timber, building blocks, ballast, sand and cement. This will be obtained from quarries, hardware shops and sand harvesters who extract such materials from natural resource banks such as rivers and land. To check on the impacts of material extraction and for management of non-hazardous wastes, both solid and liquid, the following is recommended:
✓ The Contractors should source construction materials such as sand and ballast from registered and NEMA licensed quarry and sand mining firms and/or from suppliers, of such firms are expected to apply acceptable environmentally and socially friendly processes in their operations;
✓ The Contractor should adhere to the procurement plan and only order for what will be required through accurate budgeting and estimation of actual construction material requirements;
✓ Contractor shall prepare waste management plan as part of the C-ESMP to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any works, which should promote waste minimization and recycling.
✓ Contractor shall be responsible for handling and disposal of all construction and related waste;
✓ Encourage efficient use of materials to as much as possible avoid and minimize waste production;
✓ Ensure waste are recycled / reused before opting to dispose of.
✓ Designate temporal waste / garbage holding areas at site;
✓ Use of waste receptacles that encourage segregation to hold waste on site before its collection;
✓ Use of durable, long-lasting materials that shall not need to be replaced often;
✓ Engage NEMA registered waste contractor to dispose of hazardous waste and have waste destruction certificate and waste transfer notes;
✓ Waste disposal by burning shall not be permitted and signage should be erected; and
✓ Fine earth materials (sand and murram) should be covered using tarpaulins during haulage to prevent spillage, dust and particulate matter emission.

h) Increased water demand
Demand for water is expected to rise during the construction phase of the proposed project for use by both the construction workers and the construction works in addition to the existing demand given that the water is to be sourced from the hospital supply. To check on its sustainable use, the following mitigation measures have been proposed:
✓ All project stakeholders and especially proponent and contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use; and
✓ The contractor water intake point should be metered so that the contractor is made to pay for water consumed or for the water wasted. Alternatively, the contractor should source water from licensed water vendors who can supply by use of water bowsers,
✓ Encourage prompt maintenance of water pipeline leaks.

i) Archaeological and other cultural properties
The field studies did not identify any known archaeologically protected monuments and cultural properties in the proposed project area and therefore, there will be no impacts on them.

Proposed Mitigation Measures
Should any archaeological or culturally important artifact be discovered during the construction/excavation process, the contractor should implement the chance **find procedure** attached as appendix 3 to this ESIA report.

j) **Occupational/public health and safety impacts**

Construction works unavoidably expose workers to OHS risks such as potential accidents and injuries resulting from unintentional falls, burns from welding, electrocution and use of faulty hand tools and construction equipment. In relation to public safety, the most serious threats will be on the areas with heavy plant and equipment moving in and out of the construction site. The list below is not fully complete and there are additional measures listed in the ESMF, ICWMP, LMP, and WBG EHS General Guidelines. Such hazards and risks can be mitigated by observing the following:

- To reduce on workers accidents and hazards, the contractor is expected to comply with Occupational Health and Safety rules and regulations as stipulated in the Occupational Safety and Health Act (OSHA), 2007. Ensure the workplace is registered by the Directorate of Occupational Safety and Health Services (DOSHS);
- The contractor shall prepare an OHS plan as part of their C-ESMP for the construction works and should include input from the HCF management on potential health and safety risks associated with the construction activities and meet all OHS requirements in Kenya laws and regulations, WB ESS2, and C-HERP ESMF and LMP;
- Workers on site should be sensitized on the health and safety requirements while at project site;
- Workers should be provided with adequate and appropriate PPE (safety helmets, shoes, gloves, mask);
- Provision of clean and accessible sanitary facilities and water to workers;
- Train all workers on Safety, Health & Environment (SHE) with an aim of improving awareness;
- Barricade the active work sites to limit entry of unauthorized people. Use of screens and nets to avoid flying debris and ensure good housekeeping in the construction sites;
- All trenches or wherever soil conditions dictate should be secured against accidental fall by workers and the public;
- Have safety signage installed along the work areas;
- A safety officer shall be designated at each site and shall maintain a log of incidents (safety register) on site;
- Task based risk assessment should be done on daily basis to assess the risks and hazards thereby prescribing the appropriate prevention measures;
- The contractor to ensure compliance with the provisions of WIBA 2007 for all the workers engaged;
- Site should have an accessible grievance redress mechanism to allow workers/community to raise safety issues and propose improvements on projects sites;
- Electrical works and installations of the medical waste incinerator should be done by a trained certified, experienced personnel; and
- Contractor shall report immediately to the HCF and C-HERP PIU any worker death or serious accident.

k) **Exposure of construction workers to hazards related to existing waste management practices and operations of the existing incinerator**

Due to the existing poor management of HCW near the proposed site for the new MWTI, construction workers may be exposed to health and safety risks (from contact with the wastes, or exposure to toxic fumes from burning of the waste). To mitigate this risk, proposed measures include:

- All workers must be provided with appropriate PPE, to be worn at all times while on site;
- Isolate the construction site with appropriate hoarding material and establish an access route away from the active disposal site;
- The HCF should stop open burning of HCW waste and identify a stop-gap measure to manage the wastes generated while construction and installation of the MWTI continues.

l) **Potential spread of communicable diseases and other infections**

Due to increased human traffic at the site during the construction phase there is a risk of spread of communicable diseases such as tuberculosis and pulmonary infections COVID-19. Aspects of the physical environment that promote transmission of diseases include: disposal of wastes and ventilation, dust emission, which are likely to occur during the construction phase of the project. With the influx of people during construction, there will be a likelihood of increase in diseases such as typhoid, tuberculosis, diarrheal diseases, dysentery, and cholera and...
Proposed Measures for Management of COVID-19 on Site

Guidelines will be put in place for protecting workers against the risks associated with COVID-19. The procedures should cover all the people operating from the project site including before arriving on site. The hospital management and the contractor will ensure all staffs have been made aware of COVID-19 pandemic and to its mitigation measures in accordance to the MoH guidelines. In order to keep the workers healthy and safe against COVID-19, the following general measures will be implemented on site:

All the requisite COVID-19 prevention measures should be observed such as the following:

- Wearing prescribed and appropriate PPE on site at all times especially the mandatory use of face masks by all workers at all times;
- Regularly washing hands, sanitizing and observing social distancing at all times as well as following WHO and GoK updated guidelines;
- Taking of body temperature of all workers and any other personnel visiting the site. The temperature should not be above 38°C. (but ensure that all thermometers are functional);
- Seeking healthcare services immediately one experiences any of the following symptoms (while at home or work): cough, fever and shortness of breath;
- Any worker who has come in to contact with a person who is infected should isolate and be made to self-quarantine for 14 days;
- Train staff on signs and symptoms of COVID-19 such as respiratory hygiene, cough etiquette, hand hygiene and use of PPE;
- Place signs and posters in areas around the project site to create awareness to project workers on COVID-19;
- Regularly assess work force characteristics and adjust work practices such as avoiding concentration of more than 15 workers per site);
- Clean up the tools and equipment used on site with soap and water or use sanitizer as appropriate; and
- Comply with all MoH guidelines and protocols geared towards controlling spread of diseases especially COVID-19.

Some of the recommended weekly routine practices at the site are as follows:

- Unless there is any update from the MoH or from the government COVID-19 related posters and signs are displayed on notice boards and entry points of the site offices, reminding people on signs and symptoms of COVID-19, proper hand washing techniques, social distancing and generally on how to protect themselves and others and
- Sensitization meetings to the employees, through which the staff continue to receive and communicate to them, the latest updates, requirements, and educational information meant to prevent the spread of COVID-19.

m) Increase in HIV/AIDS Prevalence and other STIs

The increase in numbers of people is likely to cause new infections around and within the construction area. This is due to the fact that the contractors, traders and workers will have money to attract women/men from the project area in a bid to solicit for sex, thereby creating avenues for spread of HIV/AIDS and other STIs. The most vulnerable members of the community are women as they don’t have access to resources necessary for production and wealth creation. This will further predispose them to sex pests and consequently to HIV/AIDS. It is recommended that the project proponent and the contractor should ensure that prevention and management of STIs occurrence as a result of social is conducted through:

- Limiting workforce importation to those with specialized skills;
- Creating awareness and sensitization of workers and the local communities on STIs including provision of condoms to the project team and the public;
The contractor to carry out regular HIV/AIDS awareness and prevention campaign amongst workers for the duration of the contract e.g., erect and maintain HIV/AIDS information posters at prominent locations as specified by the PWE; and

The contractor has to ensure that staff is made aware of the risks of contracting or spreading sexually transmitted diseases.

n) Labour influx
It is envisaged that the civil works may attract an average of 20 workers during the construction phase. The contractor should undertake measures to ensure that unskilled labourers are recruited from within the project locality to prevent risks disputes related to allegations of discrimination of the locals from unskilled job opportunities. The following measures will be implemented:

- Construction workers are hired from within the locality (especially for unskilled workers) hence limiting movement or only short distances from their homes;
- Effective contractual obligations for the contractor will be done with workers to adhere to the mitigation of risks against labour influx, including SEA;
- The contractor to maintain proper records of all workers indicating age and gender and avoid recruiting people aged below 18 years and forced labor;
- Contractor to observe fair treatment, non-discrimination and equal opportunity of all labourers including persons with disabilities;
- All contracted workers to sign a CoC that will have provisions on individual responsibilities; and
- The contractor to ensure that the workers have access to and are informed about the project GRM.

o) Human Rights and Gender Inequalities
Women are highly vulnerable as their labour participation is often highly informal. Low-income and migrant female workers are especially vulnerable. The COVID-19 pandemic worsened the already high prevalence of GBV due to greater economic stress in households coupled with increased social isolation. It is recommended that:

- Contractor to ensure no discrimination against one gender either by design or oversight during recruitment;
- The contractor/facility to ensure provision of the necessary basic sanitary facilities in relation to gender – provide separate sanitary facilities;
- The contractor to collaborate with the hospital management in handling any GBV/SEA cases that may arise;
- Report any violations of the CoC/gender mainstreaming requirements to workers’ representative, HR or grievance redress committee, the Social Safeguards experts at the PMT and ensure that no employee who reports a violation of the CoC in good faith will be punished in any way;
- Comply with the National Gender and Equality Act, 2011 and related statutes;
- Treat women, children and men with respect regardless of race, colour, language, tribe, religion, or other status; and
- Implement strict sanctions on any worker who is reported to have been a perpetrator of SEA to fellow workers and community members.

p) Conflict and Insecurity
There is likelihood of conflict between the contractor and the surrounding communities due to: labour recruitment; shared resources (road, etc.); and behaviour of workers. This could also be as a result of community clashes around the facility, theft of construction equipment and commodities, vandalism, conflict between construction workers and contractor management due to working conditions and terms of service.

Propose Mitigation Measures

- The contractor should explore possibilities of having a different access to the project site so as to enhance security and differentiate between patients, visitors and workers accessing the site.
- The contractor, in conjunction with the hospital management, should hire more security personnel, and if possible, security personnel dedicated to the construction site and its activities.
- Ensure heightened surveillance of the project site and facility during the construction/installation works.
- Utilize intelligent information for security of workers and project materials, e.g., during operations and transit of materials and workers.
- Raise awareness on the GRM mechanisms.
✓ Adequate consultation with surrounding communities and workers regarding the construction works.
✓ It is also recommended that the construction workers be provided with easily identifiable uniforms.
✓ Contractor security personnel should sign the CoC that discourages the use of force unless for defensive purposes.
✓ Ensure proper arrangement for shared resources, e.g., water.

q) Sexual Exploitation and Abuse/sexual harassment
Interaction between construction workers and other project stakeholders such as hospital staff and community could lead to SEAH as senior workers may seek sexual favors from the juniors especially in relation to recruitment and promotion opportunities. It is recommended that:
✓ The contractor develops a CoC which encompasses clear warning to workers on SEAH and to be signed by every worker on site;
✓ The contractor, with the supported HCF should provide a mechanism where workers and clients are free to report any SEAH to the senior management without fear of intimidation;
✓ Share information with the facility and project GRM to communities and all stakeholders;
✓ Share information on GBV/SEAH services around/near the facility for victim’s information support; and
✓ Contractor to ensure that staff is sensitized on GBV/SEAH risk management.

r) Grievance emanating from project construction activities
This is the procedure and mechanism through which relevant stakeholders, specifically the project affected persons (PAPs) and hospital community members express their concerns against the project and the implementing staff. Various construction activities may cause dissatisfaction among stakeholders. The GRM provides the means through which relevant stakeholders, specifically the PAPs and hospital community members express their concerns against the project and the implementing staff. In reference to the minimum GRM indicated in the project SEP, it is recommended that the contractor and facility should:
• Put in place grievance mechanisms, e.g.:
  o Assigning a contractor-based GRM Focal Person;
  o Putting in place channels to allow people to complain, e.g., telephone, Email, registers, WhatsApp, platform for workers, suggestion box, among others; and
  o Ensuring documentation of complaints in complaints registers.
• Raise awareness to all stakeholders including project workers on the existing GRM and sensitize them on the need to register their dissatisfaction with the contractor or the facility;
• Resolve complaints within the project timeline (acknowledging within 7 days and resolving within 21 days or as soon as possible (within 24 hours for GBV/SEA complaints);
• Implement strict sanctions to any worker who contravenes the CoC; and
• Compile reports on the complaints and grievances received on the project and submit monthly reports to the PMT using the guidance provided in appendix 5.

s) Child labour risks in the sub-project
Incidence of child workers may occur during construction especially in light of the rising livelihood needs at the household level as a result of the impacts of COVID-19 and other causes. It will be critical for the contractor management to protect the project from such incidence by ensuring that recruitment complies with the national laws and that continuous monitoring is done within the phase to ensure non-occurrence of such incidences.

Proposed Mitigation Measures
• The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including on GBV/SEAH;
• All staff must sign a contract which clearly defines what is and is not acceptable behavior and commit themselves towards protecting children;
• Children under the age of 18 years should not be hired on site as provided by Child Rights Act, 2014;
• Wherever possible, ensure that another adult is present when working in the proximity of children;
• Not to invite unaccompanied children to workers’ homes, unless they are at immediate risk of injury or in physical danger;
• Project workers must refrain from hiring children for domestic or other labor;
- Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Kenya's Employment Act Cap 226 of 2022 Part VII on protection of children against exploitation; and
- Ensure that recruitment inventory indicates the ages of employment applicants and age verification is done using the national identification cards.

t) Labor Disputes
The contractor and suppliers for the MWTI will have workers who will be involved in the installation of the incinerator and undertaking the other construction works. The potential labour disputes may arise due to breach of contract regarding conditions of employment, fringe of benefits, hours of work and wages negotiated or of already agreed terms. Labor disputes may also arise due to disagreements amongst the workers and between workers and the contractors.

Proposed Mitigation measures
The project shall adhere to the requirements proposed in the project LMP including:
- Fair terms and conditions shall be applied for project workers (guided by relevant labour laws);
- The project shall also have GRMs for project workers (direct workers and contracted workers) to promptly address their workplace grievances;
- The project contractors shall abide by the provision of the projects LMP;
- The project shall respect the workers’ right of labor unions and freedom of association; and
- Ensure overtime is recorded and compensated.

7.4. Potential Impacts during the Operational Phase
a) Improper Healthcare Waste Management
During its operation, the MWTI will treat medical waste generated from several clinical hospital activities including HCW from sample collection from COVID-19 suspected patients, laboratory practices and procedures (performing and handling of specimen and chemicals) from activities in isolation area; which need to be disposed of in an appropriate medical waste disposal facility. Improper disposal of medical waste would have environmental and public health impacts. For example, open burning of medical wastes can result in emission of dioxins, furans and particulate matter, and result in unacceptable health risks.

Proposed Impact Mitigation Measures
In addition to WHO guidelines and recommendation in operation of MWTI and the specific measures to be identified in the operation manual for the MWTI equipment to be purchased for this project (which is yet to be identified), the following are some of the recommended impact mitigation measures:
- The hospital shall prepare, operate and maintain a Health Care Waste Management Plan (HWMP) adequate for the scale and type of activities and identified hazards. It should be consistent with the National regulations, project ICWMP, the WBG EHS guidelines for Health Facilities\textsuperscript{10}, and WHO guidelines (section
- The waste management plan should include:
  - Assignment of responsibilities including designating a waste management officer;
  - Waste classification (including quantities of waste generated);
  - Waste minimization, segregation, reuse, and recycling;
  - On-site handling, transport and storage practices (including containerization, color coding, labelling and signage);
  - Waste-treatment and disposal options (on-site and off-site);
  - Record keeping and documentation, training and monitoring;
  - Costs relating to waste management, including capital, operational and maintenance costs;
- Waste should be identified and segregated at the point of generation. The segregated waste should not be lumped together during its collection and transportation to the MWTI. Non-hazardous waste, such as paper and cardboard, glass, aluminium and plastic, should be collected separately and recycled. Food waste should be segregated and composted. Infectious and/or hazardous wastes should be identified and segregated at source according to its category using the colour-coded system
- Prevention and minimization of the production of waste (integrating systems and practices to avoid the

\textsuperscript{10}IFC Environmental Guidelines for Health Care Facilities, 2007
creation of waste into facility design and management and equipment and consumables purchasing);

- Reuse or recycling of wastes to the degree feasible, employing:
  - Source reduction measures such as purchasing restrictions to ensure the selection of methods or supplies that are less wasteful or generate less health care waste;
  - Recyclable products (use of materials that may be recycled either on- or off-site);
  - Good management practices rigorously applied to purchase and control of chemicals and pharmaceuticals; and
  - Segregation of wastes into different categories—for control of quantities and disposal methods.

- Seal and replace waste bags and containers when they are approximately three quarters full. Full bags and containers should be replaced immediately;

- Identify and label waste bags and containers properly prior to removal;

- Transport waste to storage areas on designated trolleys / carts, which should be cleaned and disinfected regularly; Disinfectant should be used on outer and inner surfaces in order to avoid possible transmission of the infections. Transport of general waste and infectious health-care waste should be done separately and at least once a day. Waste containers and on-site transport trolleys should have covers to contain the wastes;

- Transport staff (Health care waste handlers) should be vaccinated at least against hepatitis A and B, polio and tetanus

- Recommendations for storage facilities for healthcare waste (WHO, 2014). Waste storage areas should be located within the hospital and sized to the quantities of waste generated, with the following design considerations:
  - Hard, impermeable floor with drainage, and designed for cleaning / disinfection with available water supply;
  - Secured by locks with restricted access;
  - Segregation facilities for infectious and other hazardous waste
  - Designed for access and regular cleaning by authorized cleaning staff and vehicles;
  - Protected from sun, and inaccessible to animals / rodents;
  - Equipped with appropriate lighting and ventilation;
  - Segregated from food supplies and preparation areas; and
  - Equipped with supplies of protective clothing, and spare bags / containers.
    - Have a washing basin with running tap water and soap that is readily available for the staff; have spillage containment equipment;

- Unless refrigerated storage is possible, storage times between generation and treatment of waste should not exceed 48 hours during cool season, 24 hours during hot season.

- All healthcare waste generated during care of COVID-19 patients should be treated as infectious waste and managed in accordance to WHO guidelines on Water Sanitation, Hygiene and Waste Management for COVID-19.

- Instructions on how to handle the infectious waste from isolation and treatment centres should be made available to the waste handlers;

- Ensure safety and health of the HCW handlers through provision of appropriate PPEs, vaccination against Hepatitis B and tetanus as well as provision of post-exposure prophylaxis (PEP) and ensure appropriate maintenance of the waste treatment equipment;

- Packaging containers for sharps should be puncture-proof;

- Customized training for the staff handling and managing healthcare wastes contaminated with COVID-19 should, just to name but a few points, include:
  - The use of appropriate / full PPEs (N95 respirators, apron, heavy duty gloves, eye protection, boots and long-sleeved gown);
  - Hand hygiene practices;
  - Waste segregation strategies and clean up procedures;
  - On-site Handling, Collection, Transport and Storage;
  - Exposure to COVID-19 infections and diseases transmission;
  - Exposure to radiation;
  - Air emission control; and
  - Fire safety measures.

- Training treatment plant operators should be on general functioning of the treatment facility, including simple
maintenance of the incinerator where appropriate; Health, safety and environmental implications of treatment operations; technical procedures for operation of the plant; Recognition of abnormal or unusual conditions; Emergency response, in case of equipment failures and alarms; Maintenance of the plant and record keeping and quality control

- Seek operational licence from NEMA of the waste treatment incinerator to ensure compliance with the Waste Management Regulations, 2006
- Reporting of spillages, accidents and other incidents, and suggesting changes; Health risks related to health-care waste; Hazards related to sorting health-care waste; Minimizing the handling of health-care waste; Use of protective equipment and personal hygiene; Safe procedures for landfilling the wastes; Updating procedures for emergency response

b) Fire Risk
Without provisions for fire safety, there is a risk of fire outbreak at the waste treatment area with disastrous life and financial impact. Fires can start from accidents or elevated emissions associated with incinerator, the high voltage electricity, chemical spills, ignitable materials within the hospital, cigarette smoking in non-designated places or old electrical connections.

**Proposed Mitigation Measures**
- Provide sand buckets, fire extinguishers to the MWTI at strategic positions and ensure servicing is done.
- The MWTI operators shall have basic training in fire control.
- Fire emergency telephone numbers should be well displayed in communal areas.
- The MWTI operators and management shall prepare a fire emergency management plan.
- Undertake regular fire drills targeting the MWTI operators to test on emergency response and use the results to improve on the response mechanism.

c) Occupational Safety and Health Risks for Waste Handlers and Operators of Waste Treatment Equipment
OHS hazards associated with handling and transport of HCW include needle-sticks injuries; injuries due to other sharps such as broken glass; ergonomic issues especially related to lifting; blood splatter during waste handling; aerosolized pathogens (disease-causing micro-organisms released as aerosols or tiny droplets suspended in air) during loading, compaction, or break up of untreated waste; breakage and spills of infectious waste bags and chemical exposure. COVID-19 is highly infectious and the risk of contraction by healthcare workers and the general public is high, if requisite training, sensitization and protective gear are not provided. The hospital environment is a potential source of infectious waste and these could pose unsafe conditions for healthcare staff. Of particular concern are health workers handling infectious waste (including sharps) without adequate protective gear, and run the risk of piercing from, storage of sharps in containers that are not puncture-proof. While some OHS risks will be new borne by the equipment introduced, most other effects exist (hence cumulative) and would only be exacerbated by increased use of healthcare services as a result of COVID-19 cases. Below is a list of OHS risk sources for healthcare staff:

i. Electrical hazard /loose electrical installations:
ii. Lack of adequate lighting in workplaces;
iii. Lack of safe access particularly for disabled employees;
iv. Inadequate ventilation in rooms;
v. Lack of adequate training (or neglect of safety precautions/ guidelines) in use of medical equipment;
vi. Dust emission;
vi. Handling and transportation of contaminated wastes (biological hazards);
viii. Malfunctioning machine controls;
ix. Loose mechanical fixes; and
x. Misuse of equipment and materials for functions they are not designed.

These hazards have the potential to cause injury or fatalities to the healthcare workers involved in handling health care waste and plant maintenance. In this regard, the MWTI operators should be trained on OHS and expected to implement the prevailing National Health Care Waste Management Plan (2016-2021) applicable to HCW treatment to avoid and minimize injuries or fatalities on their premises.
Proposed Mitigation Measures

- Ensure the implementation of standard precautions and transmission-based precautions in line with national guidelines for IPC in HCFs taking into account guidance from WHO and/or CDC on COVID-19 infection control, World Bank’s EHS guidelines and Waste Management Plan and the Operational Manual and Procedures for the MWTI equipment as provided by Equipment Company. These shall be customized through the development of the health facility specific instruments, among this include facility level infection control and waste management plan that incorporate among others health and safety aspects which must contain appropriate safety measures
- Ensure identification of risks (Job Risk Assessment) and instituting proactive measures,
- Train the healthcare waste handler and the MWTI operator on the potential OHS risks in relation to COVID-19. Of particular interest are the operators of the MWTI, who must be trained on the contents of the health and safety plan including on the general functioning of the treatment facility, including heat recovery and flue-gas cleaning technologies, where appropriate; Health, safety and environmental implications of treatment operations; Technical procedures for operation of the plant; Recognition of abnormal or unusual conditions; Emergency response, in case of equipment failures and alarms; Maintenance of the plant and record keeping; Surveillance of the final waste treated;
- Provide emergency response equipment such as a first aid kit and firefighting equipment, to be placed at strategic locations to allow ease of access by workers on-site,
- Temporal waste holding area should be well sheltered from direct rainfall and strong winds but should be adequately aired and ensure regular cleaning and disinfection of the waste treatment area;
- Implementation of systemic risk management plan comprising risk prevention, evacuation of accident victims, evaluation and improvement measures.
- The MWTI operators should be provided with appropriate PPE and trained on their proper use. Each of the MWTI operators should be provided and equipped with:
  - An approved unused disposable overall;
  - Safety gumboots or closed shoes;
  - Right grade hand gloves;
  - The recommended goggles;
  - Helmet;
  - Right grade respirators; and
  - Ear Plugs.
  - Eye protection
  - Appropriate COVID-19 protection including use of single use medical mask
- Limit access to the waste treatment area only to authorised persons;
- Warning and safety signage to be placed at the areas within the MWTI site;
- All personnel involved with the HCWM process should be subjected to medical surveillance;
- Regularly cleaning and disinfection at the waste treatment area;
- The waste holding area/chambers should be well sheltered from direct rainfall, sunlight and strong winds but should be adequately aired;
- All machinery and equipment involved in the waste treatment and disposal process should be washed and disinfected prior to leaving site;
- Thorough, complete and up to date records should be kept of:
  - Medical surveillance of operators;
  - Maintenance of equipment control measures;
  - Daily HCW inventory;
  - Training given to employees in terms of HCWM and machine maintenance for as long as the employee remains at the workplace in which he is being exposed to HCW; and
  - Maintenance of an accident incident logbook on site.

d) Gender Based Violence/Sexual Exploitation and abuse
During the C-HERP implementation period, the project will continue to monitor SEAH risks in the supported healthcare sites including Garissa Hospital. The hospitals will be required to report any SEAH cases affecting sub-project workers to the PMT within 24-hour of the incidence.
Proposed mitigation measures

- Continue sensitization of staff on SEAH risk management;
- Provision of GRM channels for reporting SEAH cases;
- Ensuring that the GBV/SEAH one pager is placed on strategic points of the facility;
- Document available GBV/SEAH referral pathways for victims’ information and support;
- Develop an action plan of all GBV/SEAH incidences to avoid recurrence;
- Ensure the facility is well lit to avoid hiding places for SEAH perpetrators;
- Provision of separate sanitary facilities for men and women;
- The hospital will continue to mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule;
- To include prohibition of GBV/SEAH in Employees CoC, e.g. outlawing the use of inappropriate language or behaviour, harassment, use of abusive, sexually provocative, demeaning or culturally inappropriate language towards women or children; and
- Prohibiting sexual activity with children under 18 years, which is a criminal offense, including through digital media and promoting respect to the rule of law in respect to children’s rights.

e) Security concerns and conflict

Lack of proper security arrangements may predispose the MWTI and accessories to theft, vandalism and pilferage among other security risks. There are also risks of break-ins and attacks by militia groups including Al Shabaab. There could also be security risks during the transportation of project equipment and materials. Therefore, there is need to ensure adequate security arrangements as guided by the Project Security Management Plan (SMP).

Proposed mitigation measures

- Ensuring that security personnel undertake adequate surveillance of the security situation at all times.
- Ensuring that incinerator sheds are locked all the time when not in use.
- Stock taking of the equipment and accessories to ensure there is no loss.
- Ensuring proper fencing and lighting arrangement.
- Consider public police reinforcement in incidences of escalated insecurity.
- Liaise with the national security forces especially during the transportation of equipment and materials.
- Ensure transport of equipment and materials to the sites is done during the day.
- Engage drivers who are appropriately trained in defensive driving.

f) Grievances arising from the project activities

Complaints can increase especially where there is lack of proper arrangement to dispose treated waste leading to piles of wastes in the neighbourhood. Similarly, there could be increased dissatisfaction of workers over terms and working conditions of operating the MWTI, therefore the need to continuously operationalize the facility GRM mechanisms. Other complaints could be related to the location and services rendered at the hospital and other general complaints related to the management of COVID-19 by the facility. There also may be complaints on community health and GBV/SEAH.

Proposed mitigation measures

- Ensuring that there is an operational GRM that is responsive to stakeholders’ concerns.
- Continuous stakeholder engagement to raise awareness of the project and clarify any outstanding issues.
- The hospital should continue to create awareness about the GRM mechanism in place to all workers, patients and neighbouring communities.
- Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants.
- Ensure that there is a workable mechanism of opening complaints reported through suggestion boxes.
- Ensure that workers adhere to the CoC and implement strict sanctions to misdeeds.

g) Environment Pollution

Waste to be generated during operation phase of the MWTI is mainly the contaminated incineration ash. If not disposed in a properly constructed ash pit, it can be blown by wind to litter the surrounding hence interfere with
the aesthetic status and has a direct effect on the surrounding community. If not well stored, the HCW awaiting treatment can lead to environmental pollution as well as public health risks.

Poor operation and maintenance of the MWI will also result in incomplete combustion of waste, mission of toxic fumes, and air pollution with potential to adversely affect the health of both workers and the surrounding community.

**Proposed Mitigation Measures**

- It shall be the responsibility of the hospital to ensure that incineration ash is disposed in a properly constructed ash pit.
- The management of the hospital shall prepare waste management plan to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) to promote waste minimization and recycling.
- Designate proper temporal waste / garbage holding areas at site free from access by scavengers, and weather elements such rain
- Waste disposal by open burning shall not be permitted and signage should be erected.
- Depending on the service level and tasks of the health-care facility, the wastewater might contain chemicals, pharmaceuticals and contagious biological agents, and might even contain radioisotopes. A major part of liquid chemical waste is disposed of via the sink. The most important chemicals in hospital wastewater are anaesthetics, disinfectants, chemicals from laboratory activities, developer and fixer solutions from photographic film processing, and iodinated X-ray contrast media. Note that sludge and sewage from health-care facilities generated by a basic wastewater-management system should never be used for agricultural or aquaculture purposes. Effluents from the basic treatment should not be discharged into water bodies that are used nearby to irrigate fruit or vegetable crops or to produce drinking-water or for recreational purposes.
- Wastes generated from maintenance of MWI facility should be collected and disposed as per the management and handling guidelines of medical waste including decontamination, reuse and recycling
- Ensure strict observance of the MWI operation and maintenance manual, and ensure the equipment is maintained in accordance with the schedule.
- Avoid overloading of the MWI to ensure complete combustion of wastes
- Carry out periodic emissions testing for the MWI in accordance with the Waste Management Regulations

h) **Community Health Risks**

Poor infection control measures particularly improper waste disposal and weak sanitation measures can cause public health risks due to resulting environmental pollution. This could be from diminished air quality from open air burning of HCW, storm water contamination or when people rummage through raw waste stockpiles or when livestock is exposed to contaminated water and waste. Unless the mitigation recommendations are implemented, the likelihood of the impact occurring is high and if practices of open air burning of all waste types continues. Weak infection control measures during interactions of community members and sub project workers may heighten their risk to exposure to COVID-19 infection among other communicable and infectious conditions, including risks of HIV/AIDS infections and other STIs. Risks of GBV/SEAH could also increase through the interactions of the workers and community members.

**Proposed Impact Management Measures**

- Ensure regular monitoring of solid, liquid waste management practices and waste treatment;
- Ensure provision of sanitation facilities to the healthcare waste handlers and operators
- Install appropriate drainage channels within the health facility, and specifically the around the MWI;
- The hospital administrator should undertake regular assessment of waste generation quantities and categories to facilitate waste management planning, and investigate opportunities for waste minimization on a continuous basis,
- Separate residual chemicals from containers and dispose of the containers to reduce generation of secondary contamination especially wastewater;
- Ensure the incinerator and scrubber system is serviced regularly to mitigate risks from excess emissions from the incinerator
- Seek NEMA license for the MWI, and
• The MWTI should be secured and out of reach from any unauthorised persons

i) Increased Water Use and Liquid Waste Generation
Once the MWTI is completed, there will be an increased demand for water use in the air scrubber and for cleaning purposes. There will also be an increased liquid wastewater generation that could contaminate the environment if not well managed.

Proposed Mitigation Measures
• The MWTI shelter construction should provide for a human waste/sewage and cleaning water management facility such as connecting to the existing sewage system.
• Designs have to provide for the facilities to be fitted with easy to clean tiles on their walls as well.
• Put roof gutters to collect rainwater from the facility roof during the rainy season for use in cleaning and the air scrubber,
• Encourage prompt maintenance of water pipeline leaks,
• Install water conserving taps that turn-off automatically when water is not being used,

j) Increased Energy Use
The installation of the MWTI will lead to the increased demand for electricity energy to run it. The MWTI will also require diesel, which maybe from a minimum of 3 to a maximum of 9 liters per hour during operation. The diesel is to be used in facilitating the ignition of the incinerator's burners. The diesel used for the startup of the incinerator may increase the carbon dioxide emissions or if the combustion is incomplete as a result of inefficient and ineffective burning practice may result to production of dioxins and furans from the MWTI.

Proposed Mitigation Measures
• Use load shedding on lighting system and other equipment to avoid creating peaks in demand;
• Turn lights off using automated sensors or a building automation system;
• Install a sub-meter at the MWTI to monitor power usage;
• Install solar energy resources to provide for additional security lighting within the waste management area in case of power outages;
• Health facility during the operation of the MWTI should practice effective health-care waste management through source reduction, segregation, resource recovery and recycling and training of personnel in order to aid in reduction of waste quantities requiring incineration, and so may lead to reduced emissions;
• Ensure the complete combustion of the waste to reduce production of polluting emissions, like dioxins or furans, and
• Use of best available emissions controls in order to substantially reduce the emission of carbon dioxide and other GHG.

7.5. Potential Impacts during Decommissioning Phase
After the MWTI including the shelter is considered non-functional, by the PWE or PHO, the facility will require to be decommissioned. At that point, the proponent may be required to vacate the site. The decommissioning exercise will have both positive and negative impacts:

During the decommissioning stage, demolition will be done, creating short term job opportunities for the youth. As well, rehabilitation works will be undertaken for the proposed project site to restore it to its original state. This will include replacement of the topsoil and re-vegetation, which will enhance the aesthetic value of the area. There will be need to employ people who will be involved in the reclamation of the site to near its original state.

The earth moving works during topsoil replacement will lead to significant deterioration of the acoustic environment within the area and the surrounding areas. This will be as a result of the noise and vibration that will be experienced from machines and workforce being utilized. Dust will also be emitted affecting the surrounding environment. The proponent will put in place mitigation measures for noise and dust pollution during the decommissioning phase. Some of the decommissioning operations may also elicit grievances from the community and therefore such complaints should be handled in a responsive manner other social risk management aspects e.g., GBV/SEAH risks, child protection and labour related issues especially since contractors are likely to be engaged.
8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLANS

8.1. Introduction

Environmental and social management and monitoring plans (ESMMP) are important tools developed to guide the proponent and contractor in mitigating the potential environmental, social health and safety risks and impacts of a proposed project. It is worth noting that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the ESMP. As such, the ESMP will be subject to regular periodic reviews. It is imperative that the project proponent focuses on reducing the negative impacts and maximizing the positive impacts associated with its activities through a program of continuous improvement. The following activities are envisaged in implementing the ESMP:

8.2. Project Preparation

- Training of the relevant project staff in environmental and social safeguards management;
- Verification of design details;
- Inclusion of environmental health and safety specifications in Tender Documents, and development of CoC for the Contractor; and
- Stakeholder engagement.

8.3. Construction

- Implementation of mitigation measures; The contractor should prepare an occupational/community safety, security and health plan and a C-ESMP for use during project construction phase to be reviewed and approved by the PIU and HCF prior to start of any construction works.
- Enforcement of environmental and OHS requirements (conditions at the Contractor’s Yard, materials storage, condition of equipment, use of PPE, security of equipment and staff etc. by the ESH Expert; as provided in the ESMP;
- Collection of data on air and noise and vibration levels by hired Air Quality Specialist as per the provision of the Air Quality Regulations of 2014 and noise and vibration levels consultant as per the Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 respectively;
- Disposal of construction solid, liquid and sanitary wastes in an acceptable manner and in conformance with regulations;
- Ensuring that the Contractor and contractor staff are adhering to the CoC and environmental health and safety specifications in the contract documents and C-ESMP;
- Training the Contractor’s workforce on environmental and social safeguards requirements and responsibility (including COVID-19, STD/HIV/AIDS, awareness);
- Liaison with local administration and community leaders in matters of disturbance to the public, security issues, and other matters arising from the project;
- Ensure engagement with the key stakeholders as identified in the SEP including an operational and responsive GRM system; and
- GBV/SEA risks management.

8.4. Operation

- Operation and maintenance, calibration and checking of all equipment as specified in respective manuals or as required by regulations;
- Undertaking air quality monitoring of emissions, as well as monitoring any leakages and spills;
- Collection of data on water (surface and ground), noise and vibration levels, to be used for analysis and remediation where necessary;
- Disposal of incineration ash and sanitary wastes in an acceptable manner and in conformance with regulations;
- Compliance with OHS manual to be prepared by the hospital management during the project preparation phase;
- Environmental and social performance reporting (based on evaluation of data collected, investigations especially the air quality monitoring etc.;
- Observing SOP designed for the proposed MWTI;
- Monitoring and implementation of various requirements in project SEP, LMP, ESMMP, GBV/SEA, Stakeholder involvement and management of complaints arising from the sub-project operations;
- Observing and implementing all the guidelines in HCWM and COVID-19 guidelines on infections spread control.
and other facets of human interactions vis-à-vis environmental and social bearing of these interactions.

- Management of labour issues; and
- Management of security issues

Table 7 provides detailed suggestions on how each of the main mitigation measures proposed should be implemented, the frequency, and the responsible party during the construction and operation phases. The ESMMP table 8 includes the monitoring indicators and means of verification.

8.5. Decommissioning

Decommissioning is an important phase in the project cycle and comes last to wind up the operational activities of a particular project. It refers to the final disposal of the project and associated materials at the end of the project lifespan. During this phase the proponent will be required to prepare a decommissioning management plan that will guide the decommissioning process and seek approvals/permits from all the relevant government agencies such as NEMA, DOSHS, MoH, Public health among others. Any environmental and social concerns that may emanate from the decommissioning activities must be addressed appropriately.

8.6. Personnel Responsible for Implementing the Environmental and Social Safeguards

The primary role of monitoring and supervision of project environmental and social compliance of the proposed sub-project will fall squarely on Garissa County Government since it has the mandate and institutional framework enshrined in the County Government Act of 2012. Key players in the monitoring of compliance in the project will include:

i. MoH environmental and social specialists
ii. Garissa health facility administrator and the public health officer;
iii. Public Works Engineer;
iv. Garissa County Administration staff which include:
   - County Director for Environment
   - County director for Physical Planning,
   - Labour Officer
   - Community Development Officer
   - Physical Planner
   - Public Health Inspector
   - Public Works Engineer
   - Occupational Safety and Health Officer

8.7. External Supervision and Implementation Support

- National Environment Management Authority
- Directorate of Occupational Health and Safety Services (DOSHS)
- World Bank CHERP Project Task team

This expertise is to be brought on board to oversee specific aspects of the project during its implementation to ensure compliance. In addition, the contractor will be required to have an ESMP to facilitate self-monitoring of impacts and implement recommended mitigation measures, during the construction and the defects liability phase. Under these phases, the contractor shall hire/employ an Environmental, Health Safety (EHS) Specialist as part of his/her employees. During the operation phase the hospital administrator, County Director for Health, County Public Health officer, County Engineer/Public Works Engineer and County Director for Environmental will play a greater role to ensure the mitigation measures are implemented.

### Table 7: Roles and Responsibilities

<table>
<thead>
<tr>
<th>Entity</th>
<th>Roles and Responsibilities</th>
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<tbody>
<tr>
<td>MOH Environment and Social Specialists</td>
<td>- Ensure the project is screened including coordinating the impact assessment and audit.</td>
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<td></td>
<td>- Support in preparation of the E &amp; S instruments, review of the instruments and ensure they are cleared by World Bank and disclosed prior to implementation of the project,</td>
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<td></td>
<td>- Ensure the environmental and social requirements are prescribed in contractors bidding documents</td>
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<td>- Periodic monitoring and surveillance of all project’s investment to ensure compliance with the mitigation measures as set out in the ESMMP.</td>
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<td></td>
<td>- Required to provide monthly, quarterly environmental &amp; social status of the project progress to feed into the overall project progress reports</td>
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</tbody>
</table>
| GCG Housing, public health, Lands urban Renewal, urban Planning and Projects Management | Supervise the Contractor and monitor works at all sites in particular;  
Provide specific technical advice on mitigation measures for construction & operational activities related to the project  
Supervise the implementation of the approve project design,  
Supervise project’s implementation for construction progress with regard to timelines and quality. |
| Hospital Administration with assistance from GCG Technical Team Labour / Probation Officer, Public Health, Labour Officer, Environment, Engineer, others | Mainly to ensure that respective activities are being done in compliance with the relevant laws, regulations and guidelines;  
The Hospital Administration with assistance from County Technical Team will ensure that Contractors use the specified construction materials as specified in the bidding documents,  
Mobilisation of the relevant stakeholders to keep project on track,  
Monitoring of the project works with regard to the technical issues,  
Monitoring project’s compliance implementation with the mitigation measures set out in the ESMMP and other contractual requirements  
Advice on implementation of corrective actions where required, and  
Recruit employees according to the Employment & Labour Act.  
Develop and fully implement, including all necessary resources, all operational phase EHS plans. |
| Contractor’s Community Liaison Officer/Sociologist. | Develop the Contractor ESMP focusing on social Issues with reference to the relevant documents i.e., client ESMP, NEMA license and any contractual conditions.  
Display and educate the workers on the workers’ CoC,  
Work with the Clerk of Works to address worker’s and community concerns in a timely manner,  
Liaise with the HIV/AIDS service provider, undertake HIV/AIDS sensitization and organize Special clinic days for the workers and the community adjacent to the site.  
Create awareness on importance of child protection and GBV in relation to the project; and as appropriate organize counselling sessions for any victims, workers and the adjacent community.  
Develop a Social, Gender and HIV/AIDS/ Child protection Checklist, CoC, stakeholder engagement/ communication plan and report regularly on progress  
Educate the communities on the site operations and the Grievance Redress System,  
Make available the telephone to facilitate community liaison.  
Establish a grievance handling committee; create awareness on mechanism/committee/process.  
Manage the complaints log and act as a secretary to the Grievance Committee, and  
Manage the environmental and social impacts and implement mitigation measures as stipulated in the ESMP.  
Provide information to PIU and HCF related to HSE performance, and immediately report any significant environmental incident or worker accident. |
| Contractor’s HSE personnel | Develop the Contractor ESMP based on the Client ESMP, NEMA license conditions and any other contractual conditions  
Develop traffic management plan,  
Ensure safe storage of the materials on site,  
Prepare a waste management Plan for the site and ensure its implementation  
Prepare safety management plan for the site and ensure safety on site  
Ensure staff regular orientation on environment management and safety drills, and  
Display of the ESMP and Safety information.  
Ensure availability and access of drinking water at the work site by all workers.  
Develop an HSE Checklist, and report regularly on progress.  
Take responsibility for mitigation and management of potential environmental and social issues on site;  
Organize and maintain briefing session records and mitigation and monitoring documentation on all matters of HSE;  
Respond to site inspection findings;  
Receive and respond to any complaints from external parties on project issues on HSE  
Institute management of accidents (if they occur), keep a log book/ sheet and report on the same  
Follow up on the health insurance requirements including compensation of workers related to accidents (in case of any occurrence).  
Provide information to PIU and HCF related to HSE performance, and immediately report any significant environmental incident or worker accident. |
### Public Works Engineer
- Supervision and manage all the sites with regard to the administration of the Construction Contracts including E&S management compliance
- Review and approve contractor ESMP and other plans
- Ensure compliance with the ESMP etc. and other laws
- Ensure that payment certificate includes environment and social costs duly endorsed,
- Responsible for approvals of the construction materials to be used in the project,
- Undertake supervision and monitoring of environmental and social issues and report to the Hospital Administrator, and MoH project management team
- Clear contractors’ compliance with managing environmental and social risks before hand over of site to the hospital management
- Provide information to PIU and HCF related to HSE performance, and immediately report any significant environmental incident or worker accidents

### Directorate of Occupational Safety and Health Services (DOSHS)
- Ensure compliance with the provisions of the OSHA of 2007 and promote safety and health of workers, and
- Issue the Certificate of Workplace for the construction site and supervise the implementation of the conditions in the certificate.

### The National Construction Authority (NCA)
- Issuing of the construction permit for the construction site and advising the Hospital over the construction related activities on value for money.
- Ensure that the contractor is accredited by NCA.

### National Environment Management Authority (NEMA)
- Issuance of the EIA licence and supervise and co-ordinate all matters relating to the environment and to be principal instrument of government in the implementation of policies relating to the environment.
- Carry out site inspection to ensure compliance with the ESIA conditions of approval.

### World Bank
- Carry out the Implementation Support Mission periodically to ascertain the level of implementation in line with the Environment and Social Commitment Plan and other environment and social instruments prepared for the project namely: ESMF, LMP and SEP.

### 8.8. Key Monitoring Indicators
Key monitoring indicators proposed include:

1. Vegetation loss and remedial restoration measures instituted
2. Air quality and Noise pollution control measures in place and how they operate
3. Erosion control measures
4. Control measures for traffic accidents
5. OHS measures for workers and the hospital staff
6. Community health and safety measures
7. Public health observance
8. Waste management measures and status
9. Water and energy resource usage
10. Material storage
11. Employment opportunities
12. HIV/AIDS interventions and related sexual behaviors among workers
13. Labour recruitment by gender and age
14. GRM including number of complaints received and resolved within the project timeline
15. Number and type of stakeholders consulted during the sub-project period
16. Number of staff inducted on safeguards requirements and those who have signed the CoC
17. Security incidences and systems
18. GBV/SEA prevalence of cases reported on the project
<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Potential Environment &amp; Social Risks and Impacts</th>
<th>Some of the Proposed key Mitigation Measures</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning and Designing Phase</strong></td>
<td>Improper designs of the MWTI shelter that lacks basic provisions, poor ventilation, inadequate capacity for waste storage area may result to health and safety risks</td>
<td>✓ Design layouts on the construction, installations and operations of the MWTI should follow the MoH approved specifications, &lt;br&gt;✓ The shelter should provide for a temporary waste storage area, washrooms, hand washing basins, office, store, fire exit route, fire suppression system and emergency alarm system. The incinerator shelter should have adequate ventilation provided &lt;br&gt;✓ Liaising with the relevant technical government departments in development of the designs; &lt;br&gt;✓ Proper siting of the waste treatment facility and ensuring harmony with the hospital layout and planning; &lt;br&gt;✓ Ensure all the legally required permits such as development approvals and the ESIA License are obtained prior to undertaking the construction activities; &lt;br&gt;✓ The contractor bidding documents should contain clauses on Environmental Social Health and Safety (ESHS) requirements to guide the contractor on the key requirements; &lt;br&gt;✓ Project Management Team (PMT) specifically the Environmental and Social Experts should ensure the design requirements are adhered to in the planning stage; and</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government</td>
</tr>
<tr>
<td>Inadequate awareness and consultation of stakeholders</td>
<td>Awareness improves civility in project planning, implementation and operations and ensuring there is social acceptability that leads to sustainability of the project.</td>
<td>✓ Ensure the stakeholders are aware of the initiation of the project and the plans under way.</td>
<td>Public Health Department (County Hospital Level), Hospital Management, ESIA Experts</td>
</tr>
<tr>
<td><strong>Construction Phase</strong></td>
<td>Interference with the Physical Setting</td>
<td>✓ The contractor should ensure that there is minimal disturbance to the project site area; &lt;br&gt;✓ The project designs should be such that they do not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area. Any topographical change needed should be done to avoid soil erosion or storm water drainage issues &lt;br&gt;✓ The excavation activities should not interfere with local drainage or introduce physical changes that are not in harmony with the physical setting of the project area; &lt;br&gt;✓ The MWTI and associated structures should be aesthetically acceptable to blend in with the surrounding environment; &lt;br&gt;✓ Construction of the waste storage area should have adequate capacity to accommodate peak waste generated due to increased patient intake as a result of COVID-19 compared to normal average monthly medical waste generated. Such a waste storage area should be constructed in a manner that does not allow leachate from the waste to find its way to the outside in cases of prolonged storage or access of the waste by scavengers with proper signage placed, &lt;br&gt;✓ The proponent shall as much as possible complete the works in such a manner that natural aesthetics shall be retained at the locations; &lt;br&gt;✓ Re-vegetation shall be undertaken to ensure that the original setting is as much as possible retained; &lt;br&gt;✓ All workers participating in the construction of the MWTI shelter and associated structures should be provided with appropriate PPE and enforce use. &lt;br&gt;✓ The proponent should observe measures stipulated in the ESMP for sustainable project implementation.</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government, Contractor</td>
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<tr>
<td>Vegetation Loss</td>
<td>✓ The contractor will ensure proper demarcation of the project area to be affected by the construction works to limit vegetation removal to project site; &lt;br&gt;✓ Strict control of construction vehicles to ensure that they operate only within the area to be disturbed and designated access routes; &lt;br&gt;✓ Retention of grass, herbaceous plants, shrubs and trees, to the extent possible on the project site; &lt;br&gt;✓ Restoration of vegetation in the disturbed surfaces should be done after completion of works.</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government, Contractor</td>
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<tr>
<td>Noise and vibration Generation</td>
<td>✓ Contractor to coordinate with HCF administration on acceptable days and times for work, and in particular related to any specific works that may cause more significant noise and/or for extended periods within a day,</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government, Contractor</td>
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<tr>
<td>Section</td>
<td>Requirements</td>
<td>Responsible Party</td>
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| Noise suppression measures                                              | ✓ Noise suppression measures must be applied to all construction equipment such as; install portable barriers to shield compressors and other small stationary equipment, cover engine of generators where necessary;  
✓ Use of quiet equipment (i.e., equipment designed with noise control elements and ensure the equipment used on site are well maintained, and in good working condition;  
✓ Limit pick-up trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage drivers to switch off vehicle engines when off-loading materials whenever possible;  
✓ Provision of appropriate PPE (hearing protection ear muffs) to the workers & any other person visiting the construction site especially in work areas with heightened noise levels;  
✓ Limit construction activities during day time i.e., between 8am and 5pm;  
✓ Construction workers should be made aware of the sensitive nature of the work place and advised to limit verbal and other forms of noise. | County Government, Contractor                                                                                                                                  |
| Air pollution (Dust and Emissions)                                      | ✓ Contractors should wet the surfaces, use dust screens/nets during demolition activities or when dusty construction activities are occurring;  
✓ Minimizing the number of motorized vehicles on use and vehicle speeds shall be limited to a maximum of 10Km/Hr;  
✓ Make use of predetermined routes;  
✓ Periodically service all the equipment and machinery and ensure in good working condition to minimize emissions  
✓ Wet all active construction areas as and when necessary to reduce dust,  
✓ Cover the stock piled construction materials and spoil generated from the excavations,  
✓ Provide appropriate PPE (dust mask) to workers and enforce on use,  
✓ When transporting construction material, ensure vehicles are covered with tarpaulins in order to decrease dust emissions; and  
✓ No burning of materials should be permitted at project site.  
✓ Fine earth materials (sand and murram) should be covered using tarpaulins during haulage to prevent spillage, dust and particulate matter emission. | MoH E&S Expert, CPHO, PWE, County Government, Contractor                                                                                                           |
| Increased generation of Spoil Material                                 | ✓ Maximizing the re-use of excavated materials in the works as far as feasible to ensure that no permanent spoil dumps are created,  
✓ Spoil dumping should be away from any water resources to avoid possible water pollution from siltation,  
✓ Extra loads of murram should be used to make good of any worn-out sections of the walkways/ driveways within the hospital; this should be done in conjunction with the hospital management,  
✓ Properly disposing off the spoil in an area identified by the contractor team and approved by the land owners, hospital management as well as by NEMA; care should be taken to avoid spoiling/ degrading land that could otherwise be used for productive purposes. | MoH E&S Expert, CPHO, PWE, County Government, Contractor                                                                                                           |
| Accidental Spills and Leakages                                         | ✓ Temporal storage on site of all hazardous /toxic substance will be in safe containers, labelled with details of composition, properties and handling information including safely data sheets  
✓ Ensure proper storage of chemicals / materials, and if possible, in secondary containers just in case of accidental puncturing and away from storm water runways or exposure to weather elements such rains  
✓ During the course of the construction works, temporary drainage channels should be constructed to encourage dispersal of meteoric waters,  
✓ Hazardous waste would be contained and properly disposed by licensed hazardous waste handler,  
✓ The contractor should provide appropriate PPE (medical mask, gowns, heavy duty gloves, eye protection and boots) to workers on site,  
✓ Provide adequate signage and communication of risks to workers, health staff/ patients  
✓ Contractor to have spill prevention and response procedure including all necessary equipment and that of workers are trained.  
✓ Contractor to immediately report to HCF and Project PIU any spills or accidental releases | MoH E&S Expert, CPHO, PWE, County Government, Contractor                                                                                                           |
| Extraction and Use of Construction Materials                           | ✓ The Contractor should source construction materials such as sand and ballast from registered and NEMA licensed quarry and sand mining firms and/or from suppliers, of such firms are expected to apply acceptable environmentally friendly processes in their operations;  
✓ The Contractor should adhere to the procurement plan and only order for what will be required through accurate budgeting and | MoH E&S Expert, CPHO, PWE, County Government, Contractor                                                                                                           |
<table>
<thead>
<tr>
<th>Contracting Authority</th>
<th>Task</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td><strong>Community and Construction Workers Exposure to Construction and Existing Incinerator Related Hazards</strong></td>
<td>✓ Restricting access to active renovation sites, including screening off or fencing the entire site to limit public access that is appropriate to the site;</td>
<td>MoH E&amp;S Expert, CPHO, CDE, PWE, County Government, Contractor</td>
</tr>
<tr>
<td>✓ Use institutional and administrative controls with a focus of high risk areas including;</td>
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<tr>
<td>✓ Provision of adequate signage and communication of risks to workers, patients, the health community and the neighbours;</td>
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<tr>
<td>✓ The public shall be notified of the works through appropriate publicly accessible sites such as the main entrance to the health facility;</td>
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<tr>
<td>✓ Contractors shall ensure measures on Safety and Health are enhanced such as; barricading the work areas to prevent entry of health staff and patients in the work sites, ensure safe access to the health facility if the building will be open to public;</td>
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<tr>
<td>✓ The contractor shall place adequate signboards to divert staff and passengers away from the work sites;</td>
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<tr>
<td>✓ Use of screens/nets to avoid flying debris, ensure good housekeeping in the construction sites;</td>
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<tr>
<td>✓ All workers shall be adequately trained on the use of PPEs which they should wear at all times while at the work site;</td>
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<tr>
<td>✓ Only authorized visitors shall access the site and wear basic PPE all the time;</td>
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<tr>
<td>✓ Construction workers shall be aware of the sensitive nature of workplace they are operating in and advised to limit verbal noise; and</td>
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<tr>
<td><strong>Increased Water Demand</strong></td>
<td>✓ The contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid water wastage; and</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government, Contractor</td>
</tr>
<tr>
<td>✓ Install a discharge meter at water outlets to determine and monitor total water usage and enable the contractor to pay for the water he utilizes or wastes. Alternatively, the contractor should source water from licensed water vendors who can supply by use of water browsers.</td>
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<tr>
<td>✓ Encourage prompt maintenance of water pipeline leaks,</td>
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<tr>
<td>✓ Install water conserving taps that turn-off automatically when water is not being used</td>
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<tr>
<td>✓ Upon commissioning of the MWTI, the hospital management will be required to supply water to the facility at their cost for normal operations. The hospital is already connected to piped water supply from Garissa, Water and Sewerage Company.</td>
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<tr>
<td><strong>Archaeological and Other Cultural Properties</strong></td>
<td>✓ Prepare and implement a Chance Finds Procedure attached as appendix 3.</td>
<td>MoH E&amp;S Expert, DASM Officer</td>
</tr>
<tr>
<td><strong>Occupation/Public Health and Safety Impacts</strong></td>
<td>✓ To reduce on the workers accidents and hazards, the contractor is expected to comply with OHS rules and regulations as stipulated in the OSHA, 2007. Ensure the work place is registered by the Directorate of Occupational Health and Safety (DOHS);</td>
<td>MoH E&amp;S Expert, CPHO, PWE, County Government, Contractor</td>
</tr>
<tr>
<td>✓ The contractor shall prepare an OSH plan as part of their C-ESMP for the construction works and should include input from the HCF management on potential health and safety risks associated with the construction activities and meet all OHS requirements in Kenya laws and regulations, WB ESS2, and C-HERP ESMF and LMP;</td>
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<tr>
<td>✓ All construction workers should be sensitized on the health and safety requirements while at project site,</td>
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<tr>
<td>✓ Workers should be provided with adequate and appropriate PPE (safety helmets, shoes, gloves, mask)</td>
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<tr>
<td>✓ Provision of clean and accessible sanitary facilities and water to workers;</td>
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<tr>
<td>✓ Barricade the active work sites to limit entry of unauthorized people such as health staff and patients. Use of screens and nets to avoid flying debris and ensure good housekeeping in the construction site;</td>
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<tr>
<td>✓ Trenches over 1.5m deep or wherever soil conditions dictate should be secured against accidental fall by workers and the public;</td>
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<td>✓ Install safety signage along the work areas;</td>
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<tr>
<td>✓ Site should have an accessible grievance redress mechanism to allow workers/community to raise safety issues and propose improvements on projects sites,</td>
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<tr>
<td>✓ Task based risk assessment should be done on daily basis to assess the risks and hazards thereby prescribing the appropriate prevention measures,</td>
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<tr>
<td>✓ Electrical works and installations of the MWTI should be done by a trained certified, experienced personnel; and</td>
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<tr>
<td>✓ A Health and safety officer shall be designated at each site and shall maintain a log of incidents/accidents (safety register) on site and report any fatalities related to the project within 24 hours.</td>
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<tr>
<td>✓ Contractor shall report immediately to the HCF and C-HERP PIU any worker death or serious accident</td>
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</table>
Contractor shall work closely with the hospital administrators to find practical ways to minimize temporal services disruption at the hospital including finding alternative off site treatment of waste.

<table>
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<tr>
<th>Spread of Communicable Diseases and Other Infections</th>
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<tbody>
<tr>
<td>Treat affected local and migrant workers which will control the spread of disease vectors (through contaminated water and between people); Provision of adequate and accessible sanitation facilities in good condition with adequate water supply; and Create awareness to workers on proper sanitation and personal hygiene to promote proper health To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate,</td>
</tr>
<tr>
<td>Mitigation measures against COVID-19 on sites: Wearing prescribed and appropriate PPE (masks) on site at all times. Regularly washing hands, sanitizing and observing social distancing at all times as well as following WHO and GOK updated guidelines. Recording of body temperature of all workers and any other personnel visiting the site. The temperature should not be above 38°C; Seeking healthcare services immediately one experiences any of the following symptoms (while at home or work): cough, fever and shortness of breath. Train staff on preventive measures of COVID-19 including respiratory hygiene, cough etiquette, hand hygiene and use of PPE Place signs and posters in areas around the project site to create awareness to project workers on COVID-19; Regularly assess work force characteristics and adjust work practices such as avoiding concentration of more than 15 workers per site when more than one person is gathered maintain social distance of at least 2 meters; Clean up the tools and equipment used on site with soap and water or use sanitizer as appropriate; Provide an easily accessible GRM to raise work place concerns relating to COVID-19; such as encourage reporting of co-workers if they show outward symptoms, and Comply with all MoH guidelines and protocols geared towards controlling spread of diseases especially COVID-19.</td>
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<thead>
<tr>
<th>Increase in HIV/AIDS Prevalence and other STIs</th>
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<tbody>
<tr>
<td>Hiring workers from the local community to prevent social challenges associated with labour camps and limit workforce importation to those with specialized skills; Education and sensitization of workers and the local communities on STIs, HIV/AIDS and risks of contracting or spreading of sexually transmitted diseases; Provision of condoms to the project team and the public; The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers for the duration of the contract e.g., erect and maintain HIV/AIDS information posters at prominent locations; Contractor should sign CoC to guide on promoting behaviour change among the workers</td>
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<thead>
<tr>
<th>Labour influx</th>
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<tr>
<td>The employees are hired from within the locality hence limited movement or very short distances from their homes; The skilled labour force from far to reside in hotels in the closest proximity to the project area; Effective contractual obligations for the contractor will be done with workers to adhere to the mitigation of risks against labor influx, including sexual exploitation and abuse; The contractor to keep proper and updated records of the labourers on site while avoiding child and forced labour; Fair treatment, non-discrimination and equal opportunity of all labourers; All workers to sign a CoC that will have provisions on individual responsibilities; and The contractor to ensure that the workers have access to a GRM.</td>
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<thead>
<tr>
<th>Human Rights and Gender Inequalities</th>
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<tbody>
<tr>
<td>During recruitment of workers there will be no discrimination against one gender either by design or oversight; Contractors not to overlook provision of sanitary, health and safety facilities such as PPE; Ensure equal pay for men and women; The contractor to ensure provision of the necessary basic sanitary facilities in relation to gender – provide separate sanitary facilities;</td>
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<table>
<thead>
<tr>
<th>MoH E&amp;S Expert, CPHO, County Government, PWE, Contractor</th>
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<tr>
<td>MoH E&amp;S Expert, CPHO, Hospital Management, PWE, Contractor</td>
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<tr>
<td>MoH E&amp;S Expert, County Labour Officer, Hospital Management, PWE, Contractor</td>
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<tr>
<td>MoH E&amp;S Expert, County Gender Officer, NGEC, Hospital</td>
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<td>Conflict and Insecurity</td>
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<thead>
<tr>
<th>Sexual Exploitation and Abuse/Sexual Harassment</th>
<th>The contractor develops a CoC which encompasses clear warning to workers on any kind of sexual exploitation and abuse and to be signed by every worker on site</th>
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<tbody>
<tr>
<td></td>
<td>The contractor and the supported HCF should provide a mechanism where workers and clients are free to report any sexual advances and abuse to the senior management without fear of intimidation;</td>
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<td></td>
<td>Share information with the facility and contractor GRM to communities and all stakeholders</td>
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<td></td>
<td>Share information on GBV/SEA services around/near the facility for victim’s information support</td>
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<td></td>
<td>Contractor to ensure that staff is sensitized on GBV/SEA risk management.</td>
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<tr>
<th>Complaints arising from construction activities</th>
<th>Put in place grievance mechanisms e.g.</th>
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<td></td>
<td>o Assigning a contractor based GRM Focal Person</td>
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<td>o Putting in place channels to allow people complaint- e.g. Telephone, Email, registers, WhatsApp platform for workers, suggestion box among others</td>
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<td></td>
<td>o Ensuring documentation of complaints- Complaints registers</td>
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<td>Raise awareness to all stakeholders including project workers on the existing GRM and sensitizing them on the need to register their dissatisfaction with the contractor or the facility</td>
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<td></td>
<td>Resolve complaints within the project timeline (acknowledging within 7 days and resolving within 21 days or as soon as possible (within 24 hours for GBV/SEA complaints)</td>
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<td>Implement strict sanctions to any worker who contravenes the CoC, and</td>
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<td>Ensure complaints reporting to the PMT on a monthly basis -using the annexed formats are reported</td>
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<thead>
<tr>
<th>Child labour and abuse</th>
<th>The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including on SEA.</th>
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<td></td>
<td>All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behaviour</td>
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<td>Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.</td>
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<td>Wherever possible, ensure that another adult is present when working in the proximity of children.</td>
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</table>
- Not to invite unaccompanied children to workers’ home, unless they are at immediate risk of injury or in physical danger.
- Project workers must refrain from hiring children for domestic or other labor.
- Ensure that recruitment inventory indicates the ages of employment applicants and age verification is done using the national identification cards.

**Labour Disputes**

- Fair terms and conditions shall be applied for project workers (guided by relevant labour laws);
- The project shall also have GRMs for project workers (direct workers and contracted workers) to promptly address their workplace grievances;
- The project contractors shall abide by the provision of the project’s LMP;
- The project shall respect the workers’ right of labor unions and freedom of association; and
- Ensure overtime is recorded and compensated.

**Potential impacts during Operational phase**

<table>
<thead>
<tr>
<th>Operating activities of the MWTI</th>
<th>Improper Healthcare Waste Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The hospital shall prepare, operate and maintain a HWMP adequate for the scale and type of activities and identified hazards consistent with the National regulations, ICWMP and the WBG EHS guidelines.</td>
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<tr>
<td>- Waste should be identified and segregated at the point of generation. Non-hazardous waste, such as paper and cardboard, glass, aluminium and plastic, should be collected separately and recycled. Food waste should be segregated and composted. Infectious and / or hazardous wastes should be identified and segregated according to its category using the colour-coded system.</td>
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<tr>
<td>- Prevention and minimization of the production of waste (integrating systems and practices to avoid the creation of waste into facility management and equipment and consumables purchasing).</td>
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<tr>
<td>- Reuse or recycling of wastes to the degree feasible,</td>
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<tr>
<td>- Seal and replace waste bags and containers when they are approximately three quarters full. Full bags and containers should be replaced immediately.</td>
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<tr>
<td>- Identify and label waste bags and containers properly prior to removal.</td>
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<tr>
<td>- Transport waste to storage areas on designated trolleys / carts, which should be cleaned and disinfected regularly, and never transport infectious and no-infectious waste together.</td>
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<tr>
<td>- All HCW generated during care of COVID-19 patients should be treated as infectious waste and managed in accordance to WHO guidelines on Water Sanitation, Hygiene and Waste Management for COVID-19.</td>
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<tr>
<td>- Instructions on how to handle the infectious waste from isolation and treatment centres should be made available to the waste handlers.</td>
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<tr>
<td>- Ensure safety and health of the health care waste handlers through provision of appropriate PPEs, vaccination against Hepatitis B and tetanus as well as provision of post-exposure prophylaxis (PEP).</td>
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<td>- Waste storage areas should be located within the hospital and sized to the quantities of waste generated</td>
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<tr>
<td>- The waste holding area/chambers should be well sheltered from direct rainfall, sunlight and strong winds but should be adequately aired;</td>
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<tr>
<td>- Train treatment plant operators on general functioning of the treatment facility, including simple maintenance of the incinerator where appropriate; and</td>
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<tr>
<td>- Seek operational licence from NEMA of the waste treatment incinerator to ensure compliance with the Waste Management Regulations, 2006</td>
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<tr>
<td>- Reporting of spillages, accidents and other incidents</td>
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**Fire risk**

- Provide sand buckets, fire extinguishers to at strategic positions within the MWTI and ensure servicing is done.
- The MWTI operators shall have basic training in fire control.
- Fire emergency telephone numbers should be well displayed at the MWTI.
- Undertake regular fire drills targeting the MWTI operators, to gauge the levels of preparedness of the operators and test on.
<table>
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<tr>
<th>Occupational Safety and Health Risks for Healthcare Workers</th>
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<tr>
<td>✓ Ensure the implementation of standard precautions and transmission based precautions in line with national guidelines for IPC in healthcare facilities, the MOH waste Management plan (2016 – 2021), the Project Infection Control and Waste Management Plan and the Operational Manual and Procedures for the MWTI equipment as provided by Equipment Company. These shall be customized through the development of the health facility specific instruments, among this include facility level infection control and waste management plan that incorporate among others health and safety aspects which must contain appropriate safety measures, ✓ Update and implement HC emergency response plan. ✓ Ensure identification of risks (Job Risk Assessment) and instituting proactive measures ✓ Train the healthcare workers on the potential OSH risks in relation to COVID-19, of particular interest are the operators of the MWTI, who must be trained on the contents of the health and safety plan including on the general functioning of the treatment facility, including heat recovery and flue-gas cleaning technologies, where appropriate; Health, safety and environmental implications of treatment operations; Technical procedures for operation of the plant; Recognition of abnormal or unusual conditions; Emergency response, in case of equipment failures and alarms; Maintenance of the plant and record keeping; Surveillance of the final waste treated product ✓ Provision of adequate and required PPE to health workers and enforce on use. This includes: single use medical mask, gown, Apron, eye protection, boots or closed shoes ✓ Provision of a system for disinfection of the multi-use PPE if not available. ✓ Implementation of systemic risk management plan comprising risk prevention, evacuation of accident victims, evaluation and improvement measures. ✓ All MWTI operators should be provided with appropriate PPE such as overalls, gum boots, hand gloves and face masks and trained on their proper use, ✓ Limit access to the waste treatment area only to authorised persons; ✓ Warning and safety signage to be placed at the areas within the MWTI site; ✓ All personnel involved with the HCWM process should be subjected to medical surveillance; ✓ Regularly cleaning and disinfection at the waste treatment area and the COVID-19 centre should; ✓ All machinery and equipment involved in the waste treatment and disposal process should be washed and disinfected prior to leaving site; ✓ Air quality monitoring should be done regularly by qualified experts within 100m of the project influence area;</td>
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<tr>
<td>DOSHS</td>
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<tr>
<td>MoH E&amp;S Expert, CPHO, Biomed engineer, County Government and DOSHS</td>
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<tr>
<td>Environmental Pollution</td>
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<tr>
<td>It shall be the responsibility of the hospital to ensure that incineration ash is disposed in a properly constructed ash pit. The management of the hospital shall prepare waste management plan to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) to promote waste minimization and recycling. Designate proper temporal waste / garbage holding areas at site free from access by scavengers, and weather elements such rain. Waste disposal by open burning shall not be permitted. Wastes generated from maintenance of MWTI facility should be collected and disposed as per the management and handling guidelines of medical waste including decontamination, reuse and recycling.</td>
</tr>
<tr>
<td>MoH E&amp;S Expert, CPHO, Biomed engineer, CLO, County Government and DOSHS</td>
</tr>
<tr>
<td>Community Health Risk</td>
</tr>
<tr>
<td>✓ Ensure regular monitoring of solid, liquid waste management practices and waste treatment; ✓ Install appropriate drainage channels within the hospital; ✓ The hospital administrator should undertake regular assessment of waste generation quantities and categories to facilitate waste management planning, and investigate opportunities for waste minimization on a continuous basis, ✓ Separate residual chemicals from containers and dispose of the containers to reduce generation of secondary contamination especially wastewater; ✓ Seek NEMA license for the MWTI ✓ The MWTI should be secured to keep it out of reach from scavengers; ✓ Ensure the HCW generated in the hospital facilities are well disinfected, treated and safely disposed of; and ✓ Community should be sensitized on infection prevention and control measures related to COVID-19.</td>
</tr>
<tr>
<td>MoH E&amp;S Expert, CPHO, CLO, County Government and DOSHS</td>
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</table>
### Occupational Health and Safety

**Risk to Waste Handling Operators**
- The MoH waste management plan, guidelines and infection control and waste management plan should be applied, observed and customized through the development of the facility specific instruments. This should be augmented by guidelines issued by WHO;
- All the operators should be in the appropriate PPE during operations of the MWTI;
- There must be a health and safety plan that is kept on-site which must containappropriate safety measures;
- The operators of the MWTI must be trained on the contents of the health and safety plan; healthcare waste management and basic maintenance of the incinerator;
- Provide adequately stocked first aid kit and ensure placed at strategic locations to allow easy access by workers on-site;
- Provide serviceable fire safety equipment and workers on use,
- Regular fire safety drills should be undertaken to gauge the levels of preparedness of the operators,
- Ensure good documentation and inventory on waste received and treated,
- Maintenance of an accident incident log book on site.

**Temporal waste holding area should be well sheltered from direct rainfall and strong winds but should be adequately aired and ensure regular cleaning and disinfection of the waste treatment area**

*MoH E&S Expert, CPHO, County Government and DOSHS*

### Increased Water Use and Liquid Waste Generation

- The facility once constructed will be connected to the sewerage line.
- Designs have to provide for the MWTI to be fitted with easy to clean surfaces as well.
- Encourage prompt maintenance of water pipeline leaks,
- Install water conserving taps that turn-off automatically when water is not being used; The hospital is already connected to piped water supply and has a large water reservoir tank.

*MoH E&S Expert, CPHO, Biomed engineer, County Government*

### Increased energy Use

- Use load shedding on lighting system and other equipment to avoid creating peaks in demand,
- Turn lights off using automated sensors or a building automation system,
- Install Sub-meter at the MWTI to monitor power usage,
- Install solar energy resources to provide for additional security lighting within the waste management area in case of power outages
- Health facility during the operation of the MWTI should practice effective health-care waste management through source reduction, segregation, resource recovery and recycling and training of personnel in order to aid in reduction of waste quantities requiring incineration, and so may lead to reduced energy use and so lead to reduction of levels of emissions.
- Ensure the complete combustion of the waste to reduce production of polluting emissions, like dioxins or furans; and
- Use of best available emissions controls in order to substantially reduce the emission of carbon dioxide and other GHG.

*MoH E&S Expert, CPHO, Biomed engineer*

### Security and conflict

- The hospital will operationalize the existing CCT and make more installations at all strategic points to enhance security
- The security guards should ensure proper surveillance of the facility
- Security guards should be sensitized on the CoC and the provision of the Security management plan
- Ensuring that security personnel undertake adequate surveillance
- Ensuring that incinerator sheds are locked all the time when not in use
- Stock taking of the equipment and accessories to ensure there is no loss
- Ensuring proper fencing and lighting arrangement.
- Consider public police reinforcement in incidences of escalated insecurity

*MoH, Hospital Management*

### GBV/SEA

- Continues sensitization of staff on SEA risk management
- Provision of GRM channels for reporting SEA cases
- Ensuring that the GBV/SEA one pager is placed on strategic points of the facility
- Document available GBV/SEA referral pathways for victims’ information and support
- Develop an Action plan of all GBV/SEA incidences to avoid recurrence
- Ensure the facility is well lid to avoid hiding places for SEA perpetrators
- Provision of separate helping places for men and women
- The hospital will continue to mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule.

*MoH E&S Expert, County Labour Officer, County Gender Officer, NGEC, Hospital Management*
To include prohibition of GBV/SEA in Employees Code of conduct e.g. discouraging the use of inappropriate language or behaviour, harassing, abusive, sexually provocative, demeaning or culturally inappropriate language towards women or children.

Prohibiting sexual activity with children under 18 years—including through digital media and promoting respect to the rule of law in respect to children’s rights.

### Decommissioning Phase

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<th>Component</th>
<th>Description</th>
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<tr>
<td><strong>Equipment/ Machine decomposition</strong></td>
<td>All machinery, equipment, structures and partitions that will not be used for other purposes must be removed, fumigated, containerized for disposal by NEMA licensed waste handler. All machinery, equipment, structures and partitions that will be used for other purposes must be removed, fumigated, packaged and containerized for relocation Where recycling/reuse of the, equipment, implements, structures, partitions and other demolition waste is not possible, the materials should be taken to a licensed waste disposal site</td>
</tr>
<tr>
<td><strong>Structures decomposition</strong></td>
<td>All foundations must be removed and recycled, reused or disposed of at a licensed disposal site All anchorages plinths must be removed, recycled, reused or disposed by NEMA licensed waste handler. Use dust screens and nets to mitigate on dust/particulate matter</td>
</tr>
<tr>
<td><strong>Demolition Wastes</strong></td>
<td>Use an integrated solid waste management system, i.e., through hierarchy of options 1. Source reduction 2. Recycling, 3 Composting and reUse 4. Combustion. 5 Sanitary land-filling Provide appropriate waste skips that encourage waste segregation Ensure proper waste collection, storage and disposal of waste generated Donate reusable demolition waste Properly dispose of the demolition debris when no longer considered useful</td>
</tr>
<tr>
<td><strong>Project Decommissioning</strong></td>
<td>The decommissioning Contractor should have a well-developed EHS plan for the decommissioning exercise certified by a Qualified EHS Officer. A qualified EHS officer should be stationed at the decommissioning site during the entire decommissioning period to ensure compliance to Health and safety plan. Ensure the workers are provided with adequate and appropriate PPE (dust mask, ear plugs, helmets, gloves) on site and enforce on use While working at height provide safety harnesses and scaffolding equipment Fence off/ barricade the site prior to demolition to minimize health and safety risks Restrict demolition activities during day time between 0080hrs to 1700 hrs. Provide adequately well stocked first aid kit and ensure one of the workers can administer first aid.</td>
</tr>
<tr>
<td><strong>Site Rehabilitation</strong></td>
<td>Proper treatment of the site should be carried out (Decontamination) Ensure the contractors backfill and rehabilitate excavated sites before final payment</td>
</tr>
<tr>
<td><strong>Re-vegetation</strong></td>
<td>Implement an appropriate re-vegetation programme to restore the site to its original status Consider use of indigenous plant species in re-vegetation Trees should be planted at suitable locations so as to interrupt slight lines (screen planting), between the adjacent residential area and the development.</td>
</tr>
<tr>
<td><strong>Social concerns</strong></td>
<td>The hospital will mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy</td>
</tr>
</tbody>
</table>
### during project decommissioning

| During project decommissioning | 2011 and 2/3 Gender Rule.  
✓ The existing community structures headed by location chiefs should be involved in local labour hire, emphasize the requirement of hiring women, youth and people with disability.  
✓ Protecting Human Risk Areas Associated with, Disadvantaged Groups, interfering with Participation Rights and interfering with Labour Rights.  
✓ To include promotion of human rights, including gender equality and equity in Employees Code of conduct  
✓ Ensure safe employment for women, including training for all staff on SH COC, sex-disaggregated latrines, regular consultation with female employees and other measures§ to ensure physical safety and dignity of female employees  
✓ GBV constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment. All forms of GBV including grooming are unacceptable be it on the work site, the work site surroundings, or at worker’s camps. Prosecution of those who commit to be pursued.  
✓ Treat women and children (persons under the age of 18) with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.  
✓ Do not use language or behaviour towards women or children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.  
✓ Sexual activity with children under 18—including through digital media is prohibited. Mistaken belief regarding the age of a child and consent from the child is not a defence.  
| MoH, Project Manager, Hospital Management, Hospital Social Worker, Contractor |

### Child welfare and protection

| Child welfare and protection | ✓ The hospital will develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project including on SEA.  
✓ All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behaviour  
✓ Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.  
✓ Wherever possible, ensure that another adult is present when working in the proximity of children.  
✓ Not invite unaccompanied children to worker’s home, unless they are at immediate risk of injury or in physical danger  
✓ Refrain from physical punishment or discipline of children)  
✓ Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.  
✓ Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Kenya’s Employment Act Cap 228 of 2007 Part VII on protection of children against exploitation  
| Children’s Officer, CLO, MoH, Hospital Management, Contractor |

### Grievances arising from project decommission

| Grievances arising from project decommission | ✓ Ensure there is an operational GRM that is responsive to stakeholders’ concerns  
✓ Inclusive stakeholder engagement to raise awareness of the project decommissioning and clarify issues and consider the input of the affected and interested parties in the process  
✓ The hospital should continue to create awareness about the GRM mechanism in place to all workers and patients  
✓ Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants  
✓ Ensuring that there is a workable mechanism of opening complaints reported through suggestion boxes  
✓ Document and report on all sub-project related grievances  
| Hospital Management, PHO, County and Facility GRM Focal Persons MoH E&S Expert, Contractor |

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**Note:** This is a partial table covering the E&S risks, impacts and mitigation measures. Reference could be made to other CHERP project documents (including the LMP, ICWMP and ESMF) for additional mitigation measures.
<table>
<thead>
<tr>
<th>Aspect</th>
<th>Potential Impact</th>
<th>Proposed Mitigation Measure (s)</th>
<th>Timing</th>
<th>Responsibility</th>
<th>Estimated cost of implementation (KShs)</th>
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<tbody>
<tr>
<td><strong>Construction Phase</strong></td>
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<td>Soil resources</td>
<td>Soil erosion</td>
<td>Re-vegetation through grassing</td>
<td>After construction</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
<td>100,000.00</td>
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<td></td>
<td>Provision of silt traps during construction as necessary</td>
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<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td></td>
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<td>Restrict construction vehicle movements to defined tracks/paths</td>
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<td>Water Quality and Resource use efficiency</td>
<td>Contamination of local water resources from inappropriate wastewater discharges</td>
<td>Direct wastewater from site activities to a sump from where suspended solids can be deposited before discharge to local drainage systems</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
<td>90,000.00</td>
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<tr>
<td></td>
<td>Contamination of water resources from spillages and leakages</td>
<td>Institute spill prevention and response procedures</td>
<td>Continuous</td>
<td>Contractor</td>
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<td></td>
<td>Increased demand on local water resources</td>
<td>Ensure efficient use of water in construction activities</td>
<td>Monthly</td>
<td>Contractor</td>
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<tr>
<td>Construction materials usage</td>
<td>Depletion of natural resources</td>
<td>Ensure efficient use of building materials</td>
<td>Continuous</td>
<td>Contractor</td>
<td>0.00</td>
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<td></td>
<td>Optimize materials through reuse</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td>Building materials</td>
<td>• Efficient use of building materials</td>
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<td>Monthly</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<tr>
<td>Air Quality (Dust and Emissions)</td>
<td>Nuisance and adverse health due to dust emission</td>
<td>• Wetting of project site to reduce dust</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td>• Put up dust screen/nets around the construction and renovation sites,</td>
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<td>• Provision of PPE (dust masks) for the workers,</td>
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<td>• Covering all trucks delivering construction material</td>
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<td>Adverse health impacts as a result of emissions of fumes from vehicles,</td>
<td>• Use of low emission machinery that use electricity as source of power or use manual labour;</td>
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<td>• Periodically Service all the equipment and machinery used during construction phase</td>
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<tr>
<td>Noise and Vibration</td>
<td>Nuisance and adverse health impacts from high noise and vibration levels</td>
<td>• Planned schedules for Construction during day time;</td>
<td>While at site and</td>
<td>Contractor, MoH E&amp;S Expert and GCRH PHO, PWE</td>
<td>50,000.00</td>
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<td></td>
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<td>• Using silencers in heavy machines,</td>
<td>during operation of</td>
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<td>• Use of PPE such as ear muffs</td>
<td>heavy machines</td>
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<td>• Operation and maintenance of equipment used on site</td>
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<tr>
<td>Waste Management</td>
<td>Health and safety hazards and environmental pollution from poor management of</td>
<td>• Provide appropriate solid waste receptacles on site</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH PHO, PWE</td>
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<td>wastes</td>
<td>• Sensitize workers on appropriate solid waste management</td>
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<tr>
<td>Social Concerns during construction and operational phases</td>
<td>Insecurity / public safety</td>
<td>Exclusion (ethnicity, gender, age, location and disability</td>
<td>Gender based Violence/Sexual Exploitation and Abuse</td>
<td>Lack of access to grievance redress mechanism</td>
<td>Labour influx</td>
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<tr>
<td>Having guards dedicated to the project sites and fencing off the project sites</td>
<td>Public awareness of the project requirements, Stakeholder engagement and collective reasoning, Implementation of the requirements of the LMP, and the GBV Action Plan.</td>
<td>The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. The contractor should communicate to the workers that there should be no or minimal interaction with the patients.</td>
<td>A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on, information provided to complainant and date the grievance was closed.</td>
<td>effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse</td>
<td>Ensure no child of below 18 years is seen on site</td>
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</tr>
</tbody>
</table>
### Efficient use of resources
- **Surface run-off and waste water management**
  - Embankment, re-vegetation, proper drainage systems
  - Efficient use of water resources
  - Spill prevention procedures and response plan
  - Continuous
  - GCRH management, PHO
  - 150,000.00

### Pollution of surface and ground water
- All liquid waste from the MWTI should be directed to the hospital septic system
- Installation of pre-treatment chambers before discharge to hospital septic system
  - Construction
  - GCRH management, hospital PHO

### Increased use of Energy and indoor air pollution
- Efficient energy use and use of clean energy as back up source of power
- Install a meter to monitor power consumption
- Switch of lights when not in use
  - Continuous
  - GCRH management, hospital PHO

### Air Quality (Dust and Emissions)
- Emissions arising from MWTI combustion
  - Use of air pollution control devices through installation of scrubbers/filters to the incinerator to remove particulate matter and other gases
  - Train the MWTI operators on best operational practices
  - Periodic operation and maintenance of the MWTI
  - Conduct periodic air quality monitoring of the MWTI area
  - Continuous
  - GCRH management, Hospital, hospital PHO & Biomedical Engineer
  - 50,000

### Waste Management
- Healthcare Waste generated from the health facility
  - Ensure appropriate and adequate segregation of HCW waste at source
  - Ensure appropriate on-site transportation of HCW to Waste treatment area,
  - Ensure proper records of waste received from the immediate health facility and other health facilities,
  - Appropriate healthcare waste storage area free from vermins
  - Ensure efficient treatment of healthcare waste
  - Appropriate transportation of ash to disposal site, that is if ash pit not within the hospital.
  - Continuous
  - Health facility manager, GCRH PHO & Biomedical engineer
  - 200,000

### General Health and Safety
- Occupational and public health hazards
  - Ensure provision of and appropriate use personal protective equipment
  - Erecting warning signs on site
  - Regular medical check-up for healthcare waste handlers and vaccination such as against Hepatitis A, B and tetanus and COVID-19,
  - Provision of appropriate sanitary facilities,
  - Provision of first aid kits
  - Undertake awareness creation on OHS to the healthcare workers and the MWTI operators in relation to COVID-19 and first aid training
  - OHS policy strategically displayed
  - SOPs for MWTI operation displayed
  - Ensure observance of public and community health and safety
  - Ensure thorough general cleanliness and disinfection of the facility among other appropriate housekeeping and ventilation practices.
  - Train MWTI operators on operation and maintenance
  - Continuous
  - Proponent, GCRH PHO, CLO & biomedical-engineer
  - 1,500,000

### Fire preparedness
- Operation of health facilities and MWTI plant
  - Conduct regular drills on fire emergency response and evacuation.
  - Conduct regular inspection of fire-fighting equipment.
  - Install an adequate number of fire-fighting equipment and systems including portable fire extinguishers and hose reels
  - Continuous
  - GCRH PHO, CLO & biomedical-engineer

### Total cost
- 2,780,000
<table>
<thead>
<tr>
<th>Aspect</th>
<th>Potential Impact</th>
<th>Mitigation Measure(s)</th>
<th>Monitoring Indicators</th>
<th>Frequency of Monitoring</th>
<th>Responsibility</th>
<th>Estimated cost of implementation (KShs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Phase</strong></td>
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</tr>
<tr>
<td>Soil resources</td>
<td>Soil erosion</td>
<td>Re-vegetation through grassing</td>
<td>Extent of vegetation cover; % of bare ground around the project site</td>
<td>After construction</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
<td>50,000</td>
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<tr>
<td></td>
<td></td>
<td>Provision of silt traps during construction as necessary</td>
<td>Presence of silt traps</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td></td>
<td>Soil compaction by equipment and machinery</td>
<td>Restrict construction vehicle movements to defined tracks/paths</td>
<td>Percentage of actual compacted area vis-a-vis the proportion that would inevitably be compacted even when caution is applied</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td>Direct wastewater from site activities to a sump from where suspended solids can be deposited before discharge to local drainage systems</td>
<td>• Existence and operation of a wastewater sump at the site • Size and type of drainage system</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH management, CPHO, PWE</td>
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<td>Institute spill prevention and response procedures</td>
<td>Established procedures for identified hazardous materials</td>
<td>Continuous</td>
<td>Contractor</td>
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<td></td>
<td>Increased demand on local water resources</td>
<td>Ensure efficient use of water in construction activities</td>
<td>• Records of amount of water used monthly. • Water saving measures instituted at the site</td>
<td>Monthly</td>
<td>Contractor</td>
<td>0.00</td>
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<tr>
<td>Construction materials usage</td>
<td>Depletion of natural resources</td>
<td>Ensure efficient use of building materials</td>
<td>• Records of building materials tracking • Financial savings in subsequent bills</td>
<td>Continuous</td>
<td>Contractor</td>
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<td>• Air quality measurement to determine amounts of dust at site • Visual observation • Complains received from staff</td>
<td>Continuous</td>
<td>Contractor, MoH E&amp;S Expert and GCRH PHO, PWE</td>
<td>100,000.00</td>
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<td>Adverse health impacts as a result of emissions of fumes from vehicles,</td>
<td>• Use of low emission machinery that use electricity as source of power or use manual labour; • Periodically Service all the equipment and machinery used during construction phase</td>
<td>• Type of machinery being used, • Visual observation of emissions • Air quality measurements to determine air borne particulate matter. • Records of serviced construction vehicles</td>
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<td>Noise and Vibration</td>
<td>Nuisance and adverse health impacts from high</td>
<td>• Planned schedules for Construction during day time;</td>
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<td>While at site and during operation of</td>
<td>Contractor, MoH E&amp;S Expert and</td>
<td>30,000.00</td>
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<tr>
<td>Waste Management</td>
<td>Health and safety hazards and environmental pollution from poor management of wastes</td>
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<tr>
<td>• Noise and vibrations measurement in Decibels</td>
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<td>Heavy machines</td>
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<td>Insecurity / public safety</td>
<td>• Provide appropriate solid waste receptacles on site, Sensitize workers on appropriate solid waste management, Engagement of a NEMA licensed contractor to collect and dispose the waste</td>
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<tr>
<td>• Availability of waste receptacles, Waste streams and volumes generated on site including hazardous waste - used oil, waste paints, Waste tracking documents</td>
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<td>• Minutes of public awareness/stakeholder engagements carried out</td>
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<td>• Signed code of conduct Code of conduct for workers</td>
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<td>MoH E&amp;S Expert, GCRH PHO/CLO</td>
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<tr>
<td>Lack of access to grievance redress mechanism</td>
<td>• A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.</td>
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<tr>
<td>• Grievance logs, No of resolved cases, No of escalated cases</td>
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<td>Continuous</td>
<td>MoH E&amp;S Expert, GCRH, CLO, PHO, PWE Contractor</td>
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<tr>
<td>Labour influx</td>
<td>• Effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse</td>
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<tr>
<td>• Copies of employment contract segregated by gender</td>
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<tr>
<td>Child labour</td>
<td>• Ensure no child of below 18 years is seen on site, Ensure contractor sign a CoC for child protection</td>
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<tr>
<td>• The work force registry with details of age</td>
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<td>Continuous</td>
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<tr>
<td>General Health and Safety during Public health and safety hazards which may be potential risk to contract</td>
<td>• Treat affected local and migrant workers to control the spread of disease vectors (through contaminated water and between people);</td>
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<tr>
<td>• Visual inspection and observation of functionality of sanitary facilities</td>
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<td>MoH E&amp;S Expert, GCRH, CLO, PWE, Contractor</td>
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</table>
construction & operation

communicable diseases and infectious diseases like COVID-19 at the site
- Provision of adequate and accessible sanitation facilities in good condition with adequate water supply;
- Create awareness to workers on proper sanitation and personal hygiene to promote proper health; and
- To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate.
- Put in place all infectious diseases including COVID-19 prevention and containment measures.
- Publish health and safety information including site rules at the site
- Ensure observance of public and community health and safety
- Ensure thorough general cleanliness and disinfection of the facility among other appropriate housekeeping and ventilation practices.

Accidents, incidents causing harm or sickness due to existence of health and safety hazards on site
- Provision and use of proper personal protective equipment
- Provision of first aid kits
- Undertake first aid training and awareness creation on OHS
- OHS policy strategically displayed
- Erecting hazards warning signs on site
- Undertake awareness creation on OHS to the healthcare workers and the MWTI operators in relation to COVID-19 and first aid training
- SOPs for MWTI operation displayed
- Train MWTI operators on operation and maintenance and general health and safety
- Display of OHS policy First aid training records, list of first aiders and those of health and safety committee members.
- Well stocked first aid kit

Fire preparedness
Operation of health facilities and MWTI plant
- Conduct regular drills on fire emergency response and evacuation.
- Conduct regular inspection of fire-fighting equipment.
- Install an adequate number of fire-fighting equipment and systems including portable fire extinguishers and hose reels
- Presence of firefighting equipment
- Statistical records and safety reports
- Serviced fire extinguishers.

Operational Phase

Efficient use of resources
Surface run-off and waste water management
- Embankment, re-vegetation, proper drainage systems
- Efficient use of water resources
- Spill prevention procedures and response plan
- Extent of vegetation cover; % of bare ground
- Amount of water used monthly; water saving measures

Continuous
MoH E&S Expert, GCRH, CLO, PHO, PWE, Contractor
50,000 once

Continuous
GCRH PHO, CLO & biomedical-engineer

Continuous
GCRH management, PHO
50,000.00
| **Pollution of surface and ground water** | • All liquid waste from the MWTI should be directed to the hospital septic system  
• Installation of pre-treatment chambers before discharge to hospital septic system | **Established procedures for identified hazardous materials** | **Construction** | GCRH management, hospital PHO |
|------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------|----------------|--------------------------|
| **Increased use of Energy and indoor air pollution** | • Efficient energy use and use of clean energy as back up source of power  
• Install a meter to monitor power consumption  
• Switch of lights when not in use | • Power usage bills monthly; energy saving measures instituted, presence of a meter | **Continuous** | GCRH management, hospital PHO |
| **Air Quality (Dust and Emissions)** | • Use of air pollution control devices through installation of scrubbers/filters to the incinerator to remove particulate matter and other gases  
• Train the MWTI operators on best operational practices  
• Periodic operation and maintenance of the MWTI  
• Conduct periodic emissions testing and air quality monitoring of the MWTI and at immediate receptor locations | • Air quality measurement to determine amounts of dust at site  
• Visual observation  
• Complains received from staff  
• Emissions analysis Report for the MWTI | **Continuous** | GCRH management Hospital, hospital PHO & Biomedical Engineer |
| **Waste Management** | • Ensure appropriate and adequate segregation of HCW waste at source  
• Ensure appropriate on-site transportation of HCW to Waste treatment area,  
• Ensure proper records of waste received from the immediate health facility and other health facilities,  
• Appropriate healthcare waste storage area free from vermins  
• Ensure efficient treatment of healthcare waste  
• Appropriate disposal of ash to ash pit or transportation to disposal site. | • Availability of waste receptacles  
• Waste streams and volumes generated on site including hazardous waste - used oil, waste paints  
• Waste tracking documents | **Continuous** | Health facility manager, GCRH PHO & Biomedical engineer |

| **Total cost** | | | **790,000** |
9. CONCLUSION AND RECOMMENDATIONS

9.1. Conclusion
The identified potential negative impacts of the proposed project could be mitigated with the suggested environmental and social mitigation measures provided. Having considered the data collected, analyzed and collated information that is available, it is the experts', considered opinion that:

i. The project does not pose any serious environmental concerns, other than those of a moderate scale that accompany similar projects provided that the project is designed, constructed, monitored and operated in compliance with all applicable design and ESHS requirements;

ii. The positive impacts of the project outweigh the negative ones, which will be adequately contained by following the prescribed environmental and social impact management and monitoring plans;

iii. MoH has put appropriate measures for the management of medical waste in most health facilities in the country;

iv. There is need for a robust monitoring and supervisory framework for its service providers contracted to manage medical waste. There should be routine monitoring of medical waste collection, transportation and validation of functionality / operations of disposal sites, and

v. As such, the project could be allowed to commence, and activities carried out in compliance with the ESMP (Table 9) and sound environmental management practices that are locally and internationally recognized.

The proponent and the contractor shall ensure that they implement and adhere to the statutory provisions of the statutes mentioned in Chapter four of this report and any other relevant ones provided for in Kenya.

9.2. Recommendations
The following are recommended going-forward with the project:

a. Though the anticipated negative environmental impacts of the project are considered moderate, localized and can be easily mitigated, the ESMP (Table 9) needs to be operationalized to ensure sustainable delivery of this project;

b. In addition, the institutional framework for the delivery of the project needs to be operationalized to effectively follow up compliance as per their mandates; and

c. The project should earmark some resources for supporting the MWTI staff to continue to benefit from continuous capacity building especially on aspects of safety and emergency preparedness.

d. The County Government of Garissa to earmark additional resources to refurbish and upgrade the existing incinerator to bring it to the required standards.
10. REFERENCES


xiii. Kenya gazette supplement Acts Local Authority Act (Cap. 265) government printer, Nairobi.


11. APPENDICES

Appendix 1: Copy of NEMA Practicing Certificate for the Consulting Firm
Appendix 2: The Eight components of C-HERP
Appendix 3: Chance Find Procedure
Appendix 4: Garissa Hospital Environmental and Social screening checklist
Appendix 5: Grievance Redress Management Plan and Sample of GRM register at the hospital
Appendix 6: Code of Conduct for All Staff and Project Workers on Kenya C-HERP Project
Appendix 7: Terms and Conditions for Employment
Appendix 8: Minutes of Public Participation Meeting
Appendix 9: HCWM Unit Layout/Design Specifications
Appendix 10: GCRH Part Development Plan (Site Map)
Appendix 11: Bill of Quantities
Appendix I: Copy of NEMA Practising Certificate for the Consulting Firm

FORM 7

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No: NEMA/EIA/ERPL/18295
Application Reference No: NEMA/EIA/EL/23981

M/S DEVLINK RESOURCES CONSULTANTS
(individual or firm) of address
P.O. Box 76065 - 00508 NAIROBI

is licensed to practice in the
capacity of a (Lead Expert/Associate Expert/Firm of Experts) Firm of Experts
registration number 2355

in accordance with the provision of the Environmental Management and Coordination
Act Cap 387.

Issued Date: 12/30/2022 Expiry Date: 12/31/2023

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA) 
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT 
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE 

License No: NEMA/EIA/ERPL/18293 
Application Reference No: NEMA/EIA/EL/23979 

M/S PATRICK KYALO KITUTA 
(individual or firm) of address 
P.O. Box 76065 - 00508 NAIROBI 

is licensed to practice in the 
capacity of a (Lead Expert/Associate Expert/Firm of Experts) Lead Expert 
General 
registration number 1275 
in accordance with the provision of the Environmental Management and Coordination Act Cap 387. 

Issued Date: 12/30/2022 
Expiration Date: 12/31/2023 

Signature..... 

(Seal) 
Director General 
The National Environment Management Authority 
P.T.O.
Appendix 2: The Eight Components of C-HERP

The C-HERP project entails eight components as stated below:

i. **Component 1**: Medical Supplies and equipment: This component aims to improve the availability of supplies and equipment needed to respond to COVID-19 and other public health emergencies and strengthen the capacity of the Ministry of Health (MoH) to provide timely medical diagnosis for COVID-19 patients;

ii. **Component 2. Response, Capacity Building and Training**: This component aims to strengthen response and build capacity of key stakeholders including health workers and communities;

iii. **Component 3. Quarantine, Isolation and Treatment Centres**: This component will strengthen the health systems capacity to effectively provide Infection Prevention and Control (IPC) and case management of COVID-19 cases;

iv. **Component 4. Medical Waste Management**: This component will ensure the safe management of waste generated by laboratory and medical activities.

v. **Component 5. Community Discussions and Information Outreach**: Advocacy, communication and social mobilization is an integral component of strengthening surveillance and response to health emergencies. GoK has developed a risk communication and community engagement strategy to keep the public informed on expected behaviors, how best to avoid infection and advise how to mitigate social and economic impacts due to the COVID-19.

vi. **Component 6: Availability of Safe Blood and Blood Products**: This support will go towards strengthening the capacity of the Kenya National Blood Transfusion Service (KNBTS) to provide safe blood and blood products. Blood is core to all clinical aspects of health systems. As patients fall ill with COVID-19, many of whom will have co-morbidities, transfusions will be needed. Anaemic mothers who deliver in this period will also continue to be at risk, e.t.c. Further, at this time when people are less likely to go out, donations will fall which endangers the whole system.

vii. **Component 7: Project Implementation and Monitoring**: Institutional and implementation arrangement are detailed under Section III. To support implementation, the project shall finance costs associated with the project coordination, activities for program implementation and monitoring and to strengthen management capacity.

viii. **Component 8: Improving Quality and Capacity for Gender Based Violence Response (GBV)**: This component aims to improve the capacity and quality of GBV response services for survivors in targeted counties with a focus on health systems strengthening. This will be achieved through a comprehensive, multi-sectoral interventions in order to reduce incidents and to respond to a range of needs of survivors. The health sector presents an immediate critical entry point for engaging in GBV mitigation and first line response, through the provision of medical and psychosocial care and referral to additional services beyond health.
Appendix 3: Chance Find Procedure

Chance find procedures will be used as follows:

a. Encounter or detection of a PCR.
b. Stop the construction activities in the area of the chance find;
c. Delineate the discovered site or area;
d. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Directorate of Antiquities Sites and Monuments, National Museums of Kenya, take over;
e. Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Directorate of Antiquities Sites and Monuments (within 24 hours or less);
f. The Directorate of Antiquities Sites and Monuments (DASM) would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of the Directorate of Antiquities Sites and Monuments (within 24 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
g. Decisions on how to handle the finding shall be taken by the Directorate of Antiquities Sites and Monuments. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
h. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Directorate of Antiquities Sites and Monuments;
i. These procedures must be referred to as standard provisions in construction contracts, when applicable. During project supervision, the Site Engineer / Public Works Engineer (PWE) shall monitor the above regulations relating to the treatment of any chance find encountered are observed;
j. Construction work will resume only after authorization is given by the responsible local authorities and the National Museum concerning the safeguard of the heritage; and
k. Relevant findings will be recorded in World Bank Implementation Supervision Reports (ISRs), and Implementation Completion Reports (ICRs) will assess the overall effectiveness of the project’s cultural property mitigation, management, and activities, as appropriate.
Appendix 4: Garissa Hospital Environmental and Social Screening Checklist

ENVIRONMENTAL AND SOCIAL SCREENING FORM FOR POTENTIAL ENVIRONMENTAL AND
SOCIAL ISSUES
FOR
KENYA COVID-19 EMERGENCY RESPONSE PROJECT (P173820)
UNDER THE
COVID-19 STRATEGIC PREPAREDNESS AND RESPONSE PROGRAM

Screening Form for Potential Environmental and Social Issues
E&S Screening Form: This form will be completed during identification of project activities by
the Environment and Social Specialists in Project Implementation Unit (PMT) to screen for the
potential environmental and social risks and impacts of a proposed sub-project. It will help the
PMT in: (i) identifying the relevant Environmental and Social Standards (ESS); (ii) establishing
an appropriate E&S risk rating for these sub-projects; and (iii) specifying the type of
environmental and social assessment required, including specific instruments/plans. The
completed forms will be signed and the record stored.
This form will allow the PMT to form an initial view of the potential risks and impacts of a sub-
project. It is not a substitute for project-specific E&S assessments or specific mitigation
plans.
A note on Considerations and Tools for E&S Screening and Risk Rating is included in this Annex
I to assist the process.

<table>
<thead>
<tr>
<th>Sub-project Name</th>
<th>Garissa County Referral Hospital</th>
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</thead>
<tbody>
<tr>
<td>Sub-project Location</td>
<td>Garissa County</td>
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<tr>
<td>Sub-project Proponent</td>
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<tr>
<td>Estimated Investment</td>
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<tr>
<td>Start/Completion Date</td>
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<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer</th>
<th>ESS relevance</th>
<th>Due diligence / Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the sub-project involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?</td>
<td>❌</td>
<td>ESS1</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Does the sub-project involve long-term, permanent and/or irreversible adverse impacts (e.g. loss of major natural habitat);</td>
<td>✓</td>
<td>ESS1</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Questions</td>
<td>Answer</td>
<td>ESS relevance</td>
<td>Due diligence / Actions</td>
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<tr>
<td>Does the sub-project involve acquisition of assets for quarantine, isolation or medical treatment purposes?</td>
<td>✔</td>
<td>ESS5</td>
<td></td>
</tr>
<tr>
<td>Is the sub-project associated with any external waste management facilities such as a sanitary landfill, incinerator, or waste water treatment plant/healthcare waste disposal?</td>
<td>✔</td>
<td>ESS3</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?</td>
<td>✔</td>
<td>ESS1</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Does the sub-project have an adequate system in place (capacity, processes and management) to address waste?</td>
<td>✔</td>
<td></td>
<td>HASP (Health and Safety Plan)</td>
</tr>
<tr>
<td>Does the sub-project have appropriate OSH procedures in place, and an adequate supply of PPE (where necessary)?</td>
<td>✔</td>
<td></td>
<td>HASP (Health and Safety Plan)</td>
</tr>
<tr>
<td>Will the activities have high probability of causing serious adverse effects to human health and/or the environment not related to treatment of COVID19 cases?</td>
<td>✔</td>
<td>ESS4</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Is the sub-project located within or in the vicinity of any ecologically sensitive areas?</td>
<td>✔</td>
<td>ESS6</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Does the sub-project involve transboundary transportation (including Potentially infected specimens may be transported from healthcare facilities to testing laboratories, and trans boundary) of specimen, samples, infectious and hazardous materials?</td>
<td>✔</td>
<td>ESS3</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>Does the sub-project involve land acquisition and/or restrictions on land use?</td>
<td>✔</td>
<td>ESS5</td>
<td>RAP/ARAP, SEP</td>
</tr>
<tr>
<td>Will the activities affect lands or rights of VMGs or other vulnerable minorities?</td>
<td>✔</td>
<td>ESS5</td>
<td>RAP/ARAP, SEP</td>
</tr>
<tr>
<td>Does the sub-project involve permanent resettlement or land acquisition?</td>
<td>✔</td>
<td>ESS5</td>
<td>RAP/ARAP, SEP</td>
</tr>
<tr>
<td>Questions</td>
<td>Answer</td>
<td>ESS relevance</td>
<td>Due diligence / Actions</td>
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<tr>
<td>Does the sub-project involve recruitment of workers including direct,</td>
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<td>ESS2</td>
<td>LMP, SEP</td>
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<tr>
<td>contracted, primary supply, and/or community workers?</td>
<td>Yes</td>
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<tr>
<td>Does the sub-project have a GRM in place, to which all workers have</td>
<td></td>
<td></td>
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<td>access, designed to respond quickly and effectively?</td>
<td>Yes</td>
<td>SEP/LMP</td>
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<tr>
<td>Does the sub-project involve significant adverse social impacts and may</td>
<td></td>
<td>ESS1</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>give rise to significant social conflict?</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Does the sub-project involve use of security or military personnel during</td>
<td></td>
<td>ESS4</td>
<td>ESIA/ESMP, SEP</td>
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<tr>
<td>construction and/or operation of healthcare facilities and related</td>
<td>Yes</td>
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<td></td>
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<tr>
<td>activities?</td>
<td></td>
<td></td>
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<tr>
<td>Are there any indigenous groups (meeting specified ESS7 criteria)</td>
<td></td>
<td>ESS7</td>
<td>Indigenous Peoples Plan/other plan reflecting agreed terminology</td>
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<tr>
<td>present in the sub-project area and are they likely to be affected by</td>
<td>Yes</td>
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<tr>
<td>the proposed sub-project negatively or positively?</td>
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<tr>
<td>Does the sub-project require Free Prior Informed Consent (FPIC)?</td>
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<td>ESS7</td>
<td>Indigenous Peoples Plan/other plan reflecting agreed terminology</td>
</tr>
<tr>
<td>Is the sub-project located within or in the vicinity of any known</td>
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<td>ESS8</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>cultural heritage sites?</td>
<td>Yes</td>
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<tr>
<td>Does the project area present considerable Gender-Based Violence (GBV)</td>
<td></td>
<td>ESS1</td>
<td>ESIA/ESMP, SEP</td>
</tr>
<tr>
<td>and Sexual Exploitation and Abuse (SEA) risk?</td>
<td>Yes</td>
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<td>Is there any territorial dispute between two or more countries in the</td>
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<tr>
<td>sub-project and its ancillary aspects and related activities?</td>
<td>Yes</td>
<td>OP7.60 Projects in Disputed Areas</td>
<td>Governments concerned agree</td>
</tr>
<tr>
<td>Will the sub-project and related activities involve the use or potential</td>
<td></td>
<td>OP7.50 Projects on International Waterways</td>
<td>Notification (or exceptions)</td>
</tr>
<tr>
<td>pollution of, or be located in international waterways?</td>
<td>Yes</td>
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</table>

1 International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.
The exclusion list of the sub-projects. If any of these parameters are "Yes", the sub-project is excluded from financing under the program.

The Environmental and Social Commitment Plan (ESCP) prepared for the project has clearly outlined the activities considered as ineligible for financing under the project. The following is a negative/exclusion list of activities that will not be financed under the project and that will be screened out:

- Activities that may cause long-term, permanent and/or irreversible adverse impacts (e.g. loss of major natural habitat);
- Activities that have high probability of causing serious adverse effects to human health and/or the environment not related to treatment of COVID-19;
- Activities that may have significant adverse social impacts and may give rise to significant social conflict;
- Activities which would require Free Prior Informed Consent (FPIC);
- Activities that may affect lands or rights of VMGs or other vulnerable minorities; and
- Activities that may involve permanent resettlement or land acquisition or adverse impacts on cultural heritage.

Conclusions:

1. Proposed sub-project is eligible for financing under the project criteria:

2. Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low), Provide Justification:

3. Proposed E&S Management Plans/ Instruments:
Appendix 5: Grievance Redress Management Plan

This ESIA provides for a Grievance redress mechanisms (GRM) which includes tools methods, and processes by which a resolution to a grievance is sought and provided. The processes are as shown below.

The project will have several channels for complaints and grievances including email, phone calls, texts, blogs, toll free number and letter writing that will also be accessible to all workers. Information on the project GRM will be made available to workers at all facilities, government offices (both national and county) and community level (chief’s office, for instance) to ensure that all workers, including CHVs have adequate information on how to lodge a complaint and who to direct it to. Anonymity will be assured when handling workers’ grievances. Although ‘suggestion boxes’ exist in many worksites and appear to be a preferred form of reporting complaints, the experience has been that these boxes are hardly opened. If these have to be used as part of the GRM, a structure needs to be put in place for opening, reviewing, responding and providing feedback on the issues raised.

The following actions will be used for managing complaints for this project:

a. Complaints will be sent to the GRM focal point at the workplace by email, text, phone, letter or in person. The complaints will be collated onto a complaints form and logged into the register (and reported. The email address and phone number will be made available to the workers at signing the contract/recruitment.

b. Complaints will be reviewed by the PMT weekly upon receipt. The grievance committee at the workplace will comprise of the in-charge (health superintendent or contractors (who will be the chair), GRM focal point will act as the secretary, and departmental heads. The team will review the complaints and provide guidance on the course of action and ensure follow-up on previous complaints. Any preliminary investigation should take place within 5 working days of the committee meeting. Feedback will be given to the complainant within 10 working days.

c. For informal complaints i.e. those raised through social media, print media or not formally lodged, the committee will be deliberate upon them to decide whether to investigate based on the substance and potential impact/reputational risk.

d. If the complaint is referred to the main project GRM and government’s legal complaints structures (EACC, CAJ, etc.), the World Bank will be notified.

e. Complaints regarding SEA will be kept confidential, the name of the complainant will not be recorded, only the age and gender of the complainant, and whether a project worker was involved and should be sent directly to the PM who should immediately inform the World Bank.

f. No disciplinary or legal action will be taken against anyone raising a complaint in good faith.

g. A monthly report of complaints resolution should be provided to the PMT and the World Bank.
Appendix 6: Code of Conduct for All Staff and Project Workers on Kenya C-HERP Project

**DOs**

1. Wear prescribed and appropriate personal protective equipment on site at all times.
2. Wash hands, sanitize and observe social distancing at all times and follow WHO and GOK updated guidelines.
3. Seek healthcare if you experience any of the following symptoms (while at home or work): cough, fever and shortness of breath.
4. Prevent avoidable accidents and report conditions or practices that pose a safety hazard or threaten the environment.
5. Treat women, children and men with respect regardless of race, color, language, religion, or other status.
6. Report any violations of this code of conduct to workers’ representative, HR or grievance redress committee. No employee who reports a violation of this code of conduct in good faith will be punished in any way.
7. Comply with all Kenya laws.

**DON'Ts**

1.Expose other people to the risk of infection in any form.
2. Leave personal protective equipment lying around.
3. Come to work if you or any of your family members has any symptoms of COVID-19 (cough, fever and shortness of breath). Report immediately to your supervisor if you or family member has any of these signs.
4. Make unwelcome sexual advances to any person in any form.
5. Have sexual interactions unless full and equivocal consent is given and there is no form of material or other coercion.
6. Use alcohol or narcotics during working hours.

* Employees, associates, and representatives, including sub-contractors and suppliers, without exception.
Appendix 7: Terms and Conditions for Employment
Below is the list of relevant provisions of the Employment Act, 2007 mainstreamed to MoH Human Resources Manual with regard to terms and conditions of work.

a. Content of individual contract in-line with Employment Act 2007 (Section 10)
Subject to the provision of this Act or regulations made hereunder, a written individual contract of employment shall specify the following: (a) name and father's name of workers; (b) address, occupation, age and sex of workers; (c) employer's name and address; (d) nature and duration of contract; (e) hours and place of work; (f) remuneration payable to the worker; (g) procedure for suspension or termination of contract.

b. Notice for termination of contract in-line with Employment Act, 2007 (Part VI; Sec 35 - 51)
Either of the contracting parties may terminate a contract of employment by giving written notice in-line with the provisions of employment Act, 2007, i.e., (a) Not less than ten days in the case of manual workers; (b) Not less than 30 days in the case of non-manual workers. Provided that no notice need be given in case the duration of contract does not exceed one month.

c. Protection of wages in-line with Employment Act, 2007 (Part IV; Sections 17 - 25)
Taking into consideration the economic and social conditions of the country (and in consistence with the provisions of Employment Act, 2007 and NEMA Human Resources Manual), the minimum wages for any category of workers may be determined by the salaries remuneration commission.

d. Hours of work – Employment Act, 2007 (Article 85, 86)
The normal hours of work of a worker shall not exceed eight a day or 48 a week. Hours worked in excess of the normal hours of work shall not exceed 12 a week and shall entitle a worker to a proportionate overtime payment in-line with the provisions of NEMA Human Resources Manual on allowances.

e. Weekly Rest
Every worker shall be entitled to one day's rest each week, which should normally fall on Friday. It shall consist of at least 24 consecutive hours each week. Workers shall also be entitled to a rest day on public holidays recognized as such by the State.

f. Annual leave (Employment Act, 2007)
Workers shall be entitled to 30days’ leave with pay for every year of continuous service. An entitlement to leave with pay shall normally be acquired after a full year of continuous service.

g. Fringe benefits (Employment Act 2007)
Any employer shall provide (a) accommodation when a worker is required to be away from his normal residence; (b) free food to workers, or subsistence allowance in place thereof; (c) free transport to and from the place of work, when a worker is required to work in a town or locality away from his normal residence.

h. Deductions from remuneration (Employment Act 2007)
No deductions other than those prescribed by the Code or regulations made hereunder or any other law or collective labor agreement shall be made from a worker’s remuneration, except for repayment of advances received from the employer and evidenced in writing.

i. Death benefit (Employment Act 2007)
In case of death of a worker during his contract of employment, the employer shall pay to his heirs an amount not less than 15 days’ remuneration as death benefit for funeral services.

j. Maternity and Paternity Leaves (Employment Act, 2007)
A woman worker shall be entitled for maternity leave with pay for 90 days and male workers 14 days in-line with the provisions employment Act, 2007 and NEMA Human Resources manual.
Appendix 9: Minutes of Public Participation Meeting

MINUTES FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) MEETING HELD AT GARISSA COUNTY REFERRAL HOSPITAL ON 17TH DECEMBER 2020 FOR THE PROPOSED INSTALLATION OF A MODERN HEALTH CARE WASTE INCINERATOR AT GARISSA COUNTY REFERRAL HOSPITAL UNDER THE COVID-19 HEALTH EMERGENCE RESPONSE PROJECT (C-HERP)

ATTENDANCE LIST

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Residential area/Designation</th>
<th>Telephone No.</th>
<th>ID. No.</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patricia Wangei</td>
<td>ECA Head Export</td>
<td>0711479776</td>
<td>2379225</td>
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<tr>
<td>2</td>
<td>Timothy Karany</td>
<td>FIA Expert</td>
<td>0714849585</td>
<td>024512411</td>
<td></td>
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<tr>
<td>3</td>
<td>Samuel NRTH</td>
<td>Medical Engineer</td>
<td>0703145415</td>
<td>226293275</td>
<td></td>
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<tr>
<td>4</td>
<td>Carol Mudendo</td>
<td>Medical Engineer</td>
<td>0706621607</td>
<td>3037537</td>
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<tr>
<td>5</td>
<td>Abubaker Mohamed</td>
<td>Epitome Le 1</td>
<td>0791284978</td>
<td>1316970</td>
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<tr>
<td>6</td>
<td>Mohammed Gabare</td>
<td>Infectional Officer</td>
<td>0714158573</td>
<td>25694782</td>
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<td>7</td>
<td>Anthony Krimbo</td>
<td>Bulal Station</td>
<td>0725327686</td>
<td>24938340</td>
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<tr>
<td>8</td>
<td>Hussein Basheen</td>
<td>Bulal College</td>
<td>0725189646</td>
<td>11214372</td>
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<td>9</td>
<td>Amna Swale Websites</td>
<td>Bulal Station</td>
<td>0720463531</td>
<td>2664606</td>
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<tr>
<td>10</td>
<td>Joseph A. Njagi</td>
<td>Bulal College</td>
<td>0725738770</td>
<td>1371428</td>
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<th>Signature</th>
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<tr>
<td>1</td>
<td>Paul M. Masamwi</td>
<td>Public Health Officer</td>
<td>0723221227</td>
<td>11972127</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Khamis H. Bahati</td>
<td>Security</td>
<td>0710367708</td>
<td>1198370</td>
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<tr>
<td>3</td>
<td>Aidan Ouma</td>
<td>Health Mau (HAD)</td>
<td>0720453318</td>
<td>1311740</td>
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</tr>
<tr>
<td>4</td>
<td>Mohamed H.</td>
<td>Opposition Hospital</td>
<td>0721541091</td>
<td>1260340</td>
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<tr>
<td>5</td>
<td>Dy. Ambrose Musa</td>
<td>Public Health Officer</td>
<td>0720251044</td>
<td>0911365</td>
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AGENDA
1. Welcome and Introduction
2. Purpose of the meeting
3. Presentation: Project description
4. Questions for clarity on project description
5. Presentation: Environmental and Social Impact Assessment
6. Discussion
7. Support for the project
8. Closing Remarks

MINUTE 01/17/12/2020/C-HERP: WELCOME AND INTRODUCTION
The meeting was called to order at 0930Hrs by the Public Health Officer (PHO). PHO welcomed all in attendance and informed them on the purpose of the meeting giving a background of the existing HCW at Garissa County Referral Hospital. Self-introductions were carried out all in attendance introduced themselves. The Medical Superintendent took time to welcome all in attendance and briefly highlighted the importance of the proposed project to the hospital and the community at large. He gave a brief history of evolution in HCW management from the use of drums, open burning, pits, burning chambers and the current modern incinerator. He informed all in attendance that the proposed project was timely and hoped that the project would be implemented in the nearest future.

To have grounded discussions, a site visit was taken first whereby the existing HCW management facility was visited and the site for the proposed project was visited too.

MINUTE 02/17/12/2020/C-HERP: PURPOSE OF THE MEETING
The lead expert (Mr. Kituta) informed all in attendance that subject to the prevailing environmental laws and regulations in Kenya specifically the Environmental Management and Coordination Act of 1999 (CAP 387) which was revised in 2015 and the Environmental Impact Assessment Regulations (Revised Edition) of 2003 (Revised in 2019) and the Legal Notice Number 31 and 32 of 2019, the proposed project should be subjected to an Environmental and Social Impact Assessment (ESIA). Further to this, regulation 17 of the Environmental (Impact Assessment and Audit Regulations, 2003 revised 2016) requires the project proponent in consultation with the authority (NEMA) to seek views of the persons that may be affected by the proposed project either directly or indirectly.

There are several reasons that inform public and stakeholders participation during the planning of a project such as the proposed project. The list below highlights reasons for public and stakeholders participation:

(a) Provide information regarding a proposed project, in this case a proposed medical waste incinerator project, to the people likely to be affected, key stakeholders and interested persons;
(b) Ensures that the ESIA process is open and transparent;
(c) Provides valuable sources of information on key impacts, potential mitigation measures and possible alternatives;
(d) Ensures that the proposed project meets the community’s needs;
(e) Ensures that the project is legitimate and it is a way of ensuring that conflicts can be addressed before the authority (NEMA) makes a decision;
(f) Assists in informed decision making;
(g) Promotes better implementation of the project once the Authority has made a decision on the proposed project;
(h) Enlightens the community on the opportunities and benefits arising;
(i) Provide an opportunity for members of public, key stakeholders and Interested persons to seek clarity and provide input into the project; and
(j) Record and document the comments raised and include them in the final report

MINUTE 03/17/12/2020/ C-HERP: PROJECT DESCRIPTION
The Lead Expert made a brief description of the project whereby he stated that there will be procurement, installation
and commissioning of a modern HCW incinerator. He informed the meeting that incinerator shelter and accessories will be put in place to facilitate the operations of the incinerator and these entails:
- Construction of an Incinerator Shelter;
- Construction of an ash pit;
- Construction of a waste storage chamber (temporary storage);
- Construction of an office, changing rooms, sanitary convenience (toilet) and material/supplies store;
- Electrical works;
- Installation of fire suppression system;
- Installation of emergency alert system;
- Paint works;
- Site landscaping;
- Signage works;
- Construction of perimeter fence;
- Hiring and training of an incinerator operator;
- Acquiring of requisite operating licenses and permits; and
- Undertaking requisite managerial strategies (Air quality monitoring, environmental auditing, Safety audits)

MINUTE 04/17/12/2020/ C-HERP: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
The lead expert took time to define ESIA and explain what the ESIA process entails. The importance of ESIA for the proposed project was discussed in detail and all in attendance were made to understand the importance of their role in the ESIA process. He informed the meeting that the ESIA process is governed and regulated by the policies, laws and regulations of the land, frameworks on environmental and social management from financiers, and international treaties.
A list of applicable legislative and regulatory instruments was highlighted as below:
- Environmental Management Principles and Guidelines
  - Sustainability
  - Principle of Intergenerational Equity
  - Principle of Prevention
  - Precautionary Principle
  - Polluter Pays Principle
  - Principle of Public Participation
  - The Cultural and Social Principle
  - Principle of International Co-Operation
- Policy Framework
  - Environmental Policy Framework
  - National Water Policy, 2000
  - Water Catchment Management Policies
- Legal Framework
  - Environmental Management and Coordination (Amendment) Act 2015.
  - Environmental Impact Assessment and Audit Regulations of 2003 (Revised 2019).
  - The Public Health Act, Cap 242.
  - Occupational Safety and Health Act (OSHA) 2007.
  - Noise and Excessive Vibrations Pollution Control Regulations 2009.
  - Water Act of 2016 and others
- The Constitution of Kenya

MINUTE 05/17/12/2020/ C-HERP: DISCUSSIONS ON ENVIRONMENTAL AND SOCIAL IMPACTS
The lead expert invited the associate expert to moderate the discussion on the environmental, social and other
issues that members of the local community deemed important to be addressed at the planning stage and this formed the main agenda of the meeting. The following table represents the various discussion topics:

<table>
<thead>
<tr>
<th>Name of stakeholder</th>
<th>Issue raised</th>
<th>Response given</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Sub-County PHO</td>
<td>Death of Livestock: The complaints that have been reaching The PHO’s office where in relation to cows and goats dying after feeding on waste remains from the HCW disposal site</td>
<td>The hospital administrator responded that the hospital expected livestock owners to take care of their livestock not to access the waste management site. However, He further admitted that the hospital needed to have ensured that the waste were treated before the animals accessed the site and fencing done to deter entry of livestock to the waste disposal area. The reason given for open disposal of the HCW was the high volume of wastes received from the GCRH and other surrounding HCF, was averaging 1700kg per day against the current incinera... translating to 1000kg/hr. The Expert underscored the need to adequately segregate the waste to free organic wastes and reduce the waste volumes requiring treatment. The two will most likely be able to treat the HCW effectively without necessarily overworking the MWTIs.</td>
</tr>
<tr>
<td>The PHO</td>
<td>Overworking of the current MWTI: the current 6years old incinerator, was reported as being overworked with no adequate time to run maintenance servicing which as a result had started emitting a lot of smoke</td>
<td>To address the challenge, the medical engineer requested if they could be supported with a HCW treatment facility that can treat at least 150kg of HCW per hour to enable treatment of the high volume of wastes from the hospital and nearby HCF. The ESIA Experts clarified that the MoH will be supporting the hospital with a 75kg/hr rating modern MWTI, which if supplemented with the current, will be able to treat a total of 125kg/hr translating to 1000kg/hr. The Expert underscored the need to adequately segregate the waste to free organic wastes and reduce the waste volumes requiring treatment. The two will most likely be able to treat the HCW effectively without necessarily overworking the MWTIs.</td>
</tr>
<tr>
<td>Ms. Amina, a community member from Bulla Skadeg</td>
<td>Fencing of the HCWM area: She suggested that the proposed project should ensure that there is proper fencing off of the HCWM site, probably via concrete perimeter wall complete with burglarproof lockable gate</td>
<td>The ESIA Experts responded that a standard MWTI should come with a perimeter fencing, even if not a perimeter wall, but at least a chain-link fence complete with a lockable gate. The hospital administrator also assured that the hospital barbed wire fencing would be repaired to keep livestock away from the hospital and stop the trespassing</td>
</tr>
<tr>
<td>The Hospital PHO</td>
<td>Construction of well paved routes from the hospital to the HCW treatment area: There was also a suggestion that the project ensures construction of well paved routes from the hospital to the HCW treatment area so as to ensure that the waste collectors make use of the wheeled trolleys within the hospital. Such will prevent the dropping of HCW from wheelbarrows.</td>
<td>The ESIA Experts clarified that this might not be part of the project scope, but urged the hospital management to compliment the MoH support by carrying out the paving from the hospital facilities to the MWTI area to ease delivery of HCW using the appropriate trolleys.</td>
</tr>
<tr>
<td>The current incinerator operator</td>
<td>Need for more Incinerator Operators: He indicated the need for additional staff to enable his off-days and ensure he works for 8 working hours. He also suggested the need for training on the MWTI operations.</td>
<td>The ESIA Experts recommended the need to train at least five persons during the delivery of the proposed MWTI to ensure adequate capacity to operate and sustain operations should any of them depart for other opportunities outside the project area.</td>
</tr>
<tr>
<td>The Medical Superintended</td>
<td>Appreciated the Support from the MoH: He was happy that the proposed project was said to produce harmless smoke given that it will be fitted with an air scrubber considering their proximity to a school and residential properties.</td>
<td>The ESIA Experts clarified that the hospital management should be very careful when the incinerator machine is delivered to ensure that it comes fitted with the air scrubber to control air pollution from the MWTI. He further advised the stakeholders that it should be subjected to stack emission testing and analysis periodically to be assured of non-pollution of the atmosphere during its operational phase.</td>
</tr>
</tbody>
</table>
and therefore asked all in attendance to confirm their support for the project or otherwise. The proposed project was supported overwhelmingly by all in attendance.

**MINUTE 07/17/2020/C-HERP: CLOSING REMARKS**

There being no other meeting, the meeting was called off at approximately 1100Hr.

A session during the ESIA public meeting

The ESIA public meeting attendees raising their hands as a show of project support
Appendix 10: GCRH Part Development Plan (Site Map)
Appendix 11: Bill of Quantities

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MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT
State Department for Public Works

Ref No: QD 108/GEN/VOL. XI/39

The principal Secretary,
Ministry of Health,
P.O. Box 30016-00100,
NAIROBI,

19th January, 2023

REF: PROPOSED MEDICAL INCINERATORS AND MICROWAVES IN SELECTED HOSPITALS

Reference is made to your letter Ref. MOH/PROC/631/20/21FY VOL 11 dated 27th October, 2022 on the above-mentioned subject.

Forwarded herewith please find the Cost estimates for the Incinerator and Microwave installations as described below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Scope</th>
<th>Estimated Cost</th>
<th>NCA Category</th>
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<td>1</td>
<td>Gariwa County Referral Hospital, Gariwa County</td>
<td>31,200,000.00</td>
<td>NCA 4 &amp; above</td>
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<tr>
<td>2</td>
<td>Loitetrok Sub County Hospital, Kajiado County</td>
<td>25,900,000.00</td>
<td>NCA 4 &amp; above</td>
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<td>3</td>
<td>Holen County Referral Hospital, Nasa County</td>
<td>27,500,000.00</td>
<td>NCA 4 &amp; above</td>
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<td>4</td>
<td>Aali Sub County Hospital, Nasa County</td>
<td>27,500,000.00</td>
<td>NCA 4 &amp; above</td>
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<tr>
<td>5</td>
<td>Kashi Sub County Hospital, Kashi County</td>
<td>25,900,000.00</td>
<td>NCA 4 &amp; above</td>
</tr>
</tbody>
</table>

Enclosed please find one copy of blank Bills of Quantities, for each facility for your further necessary action.

Qrs. N.M. Mutua
FOR: PRINCIPAL SECRETARY
```