

**MALAWI COVID-19 EMERGENCY RESPONSE AND HEALTH SYSTEMS PREPAREDNESS PROJECT**

**P173806**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE PROPOSED REHABILITATION OF SELECTED SECTIONS OF KAMUZU CENTRAL HOSPITAL IN LILONGWE**

**December, 2024**

# EXECUTIVE SUMMARY

**Introduction**

Ministry of Health, through Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP), a World Bank funded project, is planning to rehabilitate selected sections of Kamuzu Central Hospital in Lilongwe District. The project’s implementation period is from April 2020 to December 2025.The Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP) is being implemented to prevent, detect and respond to the threat posed by COVID-19 in Malawi and strengthen national systems for public health preparedness.

The Project comprises three components, including:

1. **Component 1: Emergency COVID-19 Response:** This component provides immediate support to Malawi to prevent COVID-19 from arriving or limiting local transmission through surveillance and containment strategies.
2. **Component 2: Supporting National and Sub-national, Prevention and Preparedness:** This component supports strengthening the capacity of the public health system for preparedness and respond to COVID-19 pandemic and to future pandemics and other threats to health security, and;
3. **Component 3: Implementation Management and Monitoring and Evaluation:** Project Management, Monitoring and Evaluation (M&E) by the project implementation unit (PIU).

One of the proposed sub-projects under the component 2 is the rehabilitation of selected sections of Kamuzu Central Hospital at a cost of MMK450,000, 000 which is planned to be implemented from October 2024 to December 2025. This Environmental and Social Management Plan (ESMP) has been prepared to meet national legislation and the World Bank Environmental and Social Framework (ESF) including project specific World Bank requirements i.e. Environmental and Social Commitment Plan (ESCP), Environmental and Social Management Framework (ESMF) and Labour Management Procedures (LMP), to ensure that the project is implemented in a sustainable manner.**Nature and scope of proposed project**

The rehabilitation works will be conducted at selected sections of the Kamuzu Central Hospital Namely Main Annex and Radiology Department. The Radiology Department is a single-storey building while the Main annex building is A 5-storey building consisting of the following departments:

* 1A Male Surgical Ward
* 1B Neurosurgery & Urology Ward
* 2A Dialysis Unit
* 2B Physiotherapy Department
* 3A Female Surgical Ward
* 3B Burns Unit
* 4A Female Medical Ward
* 4B Male Medical Ward
* Medical High Dependency Unit (MHDU).

The proposed rehabilitation works of the selected sections will include the following works; roofing, walls, doors, floors, ceiling, windows, Sanitary Fittings, Joinery fittings and Electrical works in the form of Power fittings. The project will also undertake maintenance of the elevator to improve access to people living with disabilities, the sick and those with other vulnerabilities. This ESMP is for both the construction and operation and maintenance phases where the contractor to undertake the works and the Ministry of Health and KCH Management during operation phase will ensure that the proposed mitigation measures for the identified environmental and social risks and impacts are implemented.

**Summary of Positive and Negative Impacts of the Project**

**Positive Impacts**

The key positive impacts of the proposed project are: 1) Creation of temporary jobs, 2) increased skills transfer to local people; 3) Increased business opportunities 4) Improved aesthetic appearance of the infrastructure 5) Improved sanitation services at the hospital, 6) Reduced x-ray exposure to other unintended people and 7) Reduced infections at the facility.

**Negative Impacts and their Mitigation**

1. Temporary disruption of Hospital services and Patients displacement

**Mitigation measures:**

* + Implement the Hospital Services and Patients Displacement Plan (appendix 9) and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP.
  + Redirect services to other parts of the facility to ensure continuity of critical operations.
  + Utilize alternative or unused Spaces where available or underutilized to temporarily accommodate displaced services and patients.
  + Prioritize critical services and ensure they remain operational even during rehabilitation phase.
  + Communicate through information campaigns to keep patients, staff, and visitors informed about the project and any changes to services.
  + Use clear signage within the hospital to direct patients to temporary locations of services.
  + Implement the works according to scheduled time to enable resumption of service delivery in shortest time as possible

2. Poor Management of solid waste **Mitigation Measures:**

* + Develop and implement a waste management plan that includes segregation, recycling, and proper disposal of construction waste.
  + Train workers and staff on proper waste segregation procedures, ensuring everyone understands the risks and responsibilities.
  + Provide adequate clearly labeled bins on-site for different types of waste.
  + Set up secure, well-contained waste storage areas to prevent littering, contamination, and exposure to weather.
  + Promote recycling and reusing of wastes where possible.
  + Dispose solid waste at designated waste disposal areas in the city (Area 38 dumpsite)
  + During operation and maintenance, conduct yearly comprehensive environmental audits of the facility to ensure that it is meeting solid waste management standard for a Health care facility, Ensure the incinerator is regularly serviced as required, Ensure waste storage areas are enclosed and kept clean and tidy. and Conduct quarterly training of hospital personnel on waste management at the facility.

1. Potential for Poor liquid waste management during operation phase

**Mitigation Measures**

* Conduct yearly comprehensive environmental audits of the facility to ensure they are in compliance with applicable environmental legislation
* Assess compliance of their wastewater discharges with the applicable discharge.
* Ensure that LWB’s capacity to handle Health care waste is maintained
* Conduct quarterly training of hospital personnel on waste management at the facility
* Ensure regular maintenance of the wastewater system of the facility.

1. Increased risk of infections due to poor management of health care wastes

**Mitigation Measures**

* The MoH and KCH must continue to train and sensitize its staff in infection control and best practices for managing infectious wastes.
* Regularly monitor performance of equipment such as incinerator and carry out maintenance.
* Ensure there is enough supply of PPE for infections prevention and control for health care workers.

4. Increased dust emissions

**Mitigation Measures:**

* + Suppress dust regularly using water and regular cleaning to minimize the spread of dust
  + Provide appropriate PPE to workers such as dust masks for those working in dusty conditions.
  + Use closed/covered trucks for transportation of construction materials.
  + Offload and store construction materials in spaces away from patients and only bring sizeable amounts to the locations of works to avoid dust emissions.

1. Increased noise pollution

**Mitigation Measures:**

* + Implement the Hospital Services and Patients Displacement Plan and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP. (appendix 9).
  + Fence the construction site
  + Use equipment with noise silencers
  + Use well maintained equipment and vehicles
  + Limit works to daytime to avoid disturbing patients at night.
  + Sensitize workers to keep voices down.
  + Avoid unnecessary movement of construction vehicles at the facility.
  + Sensitize community/patients and guardians on time of noisy activities

1. Increased generation of hazardous wastes.

**Mitigation measures:**

* + Develop and implement a waste management plan that includes hazardous waste as part of contractor’s ESMP.
  + Substitute hazardous construction materials with nonhazardous alternatives
  + Segregate scrap metals and glass from other waste streams to ensure safe handling.
  + Secure storage and label all storage areas for hazardous wastes to minimize the risk of accidents, spills, or contamination.
  + Store hazardous waste at designated locations before final disposal at appropriate agreed sites with local authorities.
  + Dispose hazardous waste at designated places and by a competent authority.

1. Occupational safety and health risks

**Mitigation measures:**

* + Develop and implement Materials Transport Management Plans as part of contractor’s ESMP.
  + Develop and implement Health and Safety Plans as part of Contractor’s ESMP.
  + Conduct risk assessment before commencing any works
  + Conduct regular safety inspections to ensure maximum safety of workers.
  + Enforce strict safety protocols and reporting mechanisms.
  + Train all workers on proper use and handling of equipment.
  + Provide well stocked first aid kits and trained first aiders
  + Provide all workers with appropriate PPE and effective use of such at all times.
  + Install signage in all critical areas and indicating “Danger equipment”, slow down “Stop” etc.

1. Risk of chemical exposure to workers

**Mitigation measures**

* + Replace hazardous chemicals such as paints and sealants or non-toxic alternatives where possible.
  + Provide regular training on the proper handling, storage, and disposal of hazardous chemicals.
  + Develop and enforce safe work practices, such as proper labeling of chemicals and implementing emergency procedures.
  + Store hazardous chemicals in labeled, secure containers and in designated storage areas to prevent accidental exposure and spills.
  + Provide suitable PPE such as gloves, respirators, protective clothing, and eye protection to workers handling hazardous chemicals.
  + Dispose hazardous chemicals in consultation with LCC and MEPA.

1. Increased Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) including defilement

**Mitigation Measures:**

* + Develop and implement GBV/SEA prevention plan
  + Sensitize workers and hospital community on GBV/SEA and harassment.
  + Conduct thorough background checks on all workers and ensure that those with a history of sexual offenses are not employed on the project.
  + Strengthen grievance redress mechanisms including reporting mechanisms for GBV/SEA and harassment.
  + Ensure workers sign and adhere to code of conduct that prohibits GBV/SEA
  + Put in a place a GRM committees having GBV/SEA champions
  + Map out and make available referral and support systems for GBV/SEA survivors

1. Increased risk to public health and safety including accidents

**Mitigation Measures:**

* + Sensitize hospital community of the works and how to stay safe.
  + Implement the Hospital Services and Patients Displacement Plan (appendix 9) and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP
  + Fence the construction site to limit access.
  + Put safety tape around all potentially dangerous spaces.
  + Identify and designate specific routes for construction vehicles to minimize their movement through the hospital premises, residential areas, schools, and other sensitive locations.
  + Conduct public awareness campaigns to inform the community at the hospital and surrounding community about the construction schedule, vehicle routes, and safety precautions to keep them informed.
  + Install speed bumps or rumble strips to slow down traffic within the hospital, residential or school zones.
  + Install signage to limit access to construction site.
  + Limit construction vehicle speeds to 20km/hour within the hospital premises to avoid accidents.
  + Use nontoxic, non-allergenic, and do not include volatile organic compound (VOC)-emitting paints and sealants.

1. Risk of asbestos exposure to workers and the public

**Mitigation measures:**

* + Undertaking an asbestos audit prior to/at the beginning of the rehabilitation of each section.
  + Implement an Asbestos Containing Materials (ACM) management plan presented in Appendix 8.
  + Train workers in Asbestos containing materials identification and handling
  + Provide appropriate PPE to workers and always ensure use
  + Dispose ACM in consultation with MEPA and LCC

1. Increased risk of leakage radiation or stray radiation

**Mitigation measures:**

* + Ensure proper shielding with lead-lined walls, doors, and windows. Follow regulatory guidelines for radiation protection in construction materials and methods.
  + Use experienced and qualified contractors who adhere to best practices in construction safety and environmental management.
  + Regularly monitor and inspect construction activities to ensure compliance with safety and environmental standards
  + Ensure regular maintenance of the facility

1. Increased risks of works disruptions and storage area flooding due to occurrence of natural hazards e.g. storms during construction

**Mitigation measures**

1. Regularly monitor weather forecasts and storm warnings to anticipate adverse weather conditions.
2. Use weather tracking systems to provide real-time updates to construction teams to
3. **Elevate Storage Areas** above potential flood levels, ensuring that materials and equipment are not in direct contact with the ground.
4. Employ waterproof covers, or enclosures to protect sensitive materials and tools.
5. Design and implement robust drainage systems to channel excess water away from the construction site and storage areas.
6. Regularly inspect and maintain drainage infrastructure to ensure it remains functional during heavy rainfall.
7. Plan for potential weather-related disruptions by building flexibility into the project timeline, to allow for rescheduling work around storm events.
8. Develop and implement emergency response plans in case of storm-related incidents, including flood evacuation procedures and protocols for securing equipment and materials.

**Project Cost**

The implementation of this ESMP is estimated to cost MWK31,000,000 (~16,000 USD) where MWK19,500,000 is the estimated cost for implementing enhancement and mitigation measures, MWK7,300,000 is the cost of implementing the monitoring plan and MWK3, 200,000 are training costs.

**Conclusions**

This project will likely generate significant socio-economic benefits to the hospital, staff and students as well as local people around Kamuzu Central Hospital (KCH) and the country at large as well as negative environmental and social impacts whose plan for mitigation has been established by this ESMP. The KCH should therefore adopt and implement all the recommendations and mitigation measures advanced in this ESMP and respective monitoring plan. The developer should also ensure adequate provision of capacity building to all key stakeholders who will be directly involved in the implementation of the project’s ESMPs, as it is an integral part to ensuring quality safeguards implementation in the project.

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# LIST OF ACRONYMS

|  |  |
| --- | --- |
| MC-ERHSPP | Malawi COVID-19 Emergency Response and Health Systems Preparedness Project |
| CESMP | Contractor Environmental and Social Management Plan |
| COVID-19 | Coronavirus Disease |
| DC | District Commissioner |
| DESC | District Environment Sub-Committee |
| DHO | District Health Officer |
| EMA | Environment Management Act |
| ESCP | Environmental and Social Commitment Plan |
| ESF | Environmental and Social Framework |
| ESMF | Environmental and Social Management Framework |
| ESMP | Environmental and Social Management Plan |
| ESS | Environmental and Social Standards |
| GBV | Gender Based Violence |
| GoM | Government of Malawi |
| GRM | Grievance Redress Mechanism |
| HAC  KCH | Hospital Advisory Committee  Kamuzu Central Hospital |
| LMP | Labour Management Procedure |
| MEPA | Malawi Environment Protection Authority |
| MoH | Ministry of Health |
| PPE | Personal Protective Equipment | |
| SEA | Sexual Exploitation and Abuse | |
| T/As  ToRs | Traditional Authorities  Terms of References | |
| WASH | Water, Sanitation and Hygiene | |

# INTRODUCTION

* 1. **Background**

Ministry of Health, through Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP), a World Bank funded project, is planning to rehabilitate selected sections of Kamuzu Central Hospital in Lilongwe District. The Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP) is being implemented to prevent, detect and respond to the threat posed by COVID-19 in Malawi and strengthen national systems for public health preparedness.

The project supports detection, surveillance, response, and system strengthening activities prioritized in the Malawi COVID-19 Preparedness and Response Plan. It addresses critical activities and fill financing gaps that have been identified and are not financed by other partners (e.g. risk communication).

The Project comprises three components, including:

1. **Component 1: Emergency COVID-19 Response:** This component provides immediate support to Malawi to prevent COVID-19 from arriving or limiting local transmission through surveillance and containment strategies.
2. **Component 2: Supporting National and Sub-national, Prevention and Preparedness:** This component supports strengthening the capacity of the public health system for preparedness and respond to COVID-19 pandemic and to future pandemics and other threats to health security, and;
3. **Component 3: Implementation Management and Monitoring and Evaluation:** Project Management, Monitoring and Evaluation (M&E) by the project implementation unit (PIU).

One of the proposed sub-projects under the component 2 is the rehabilitation of the selected sections of Kamuzu Central Hospital at a cost of MMK450,000,000 which is planned to be implemented from October 2024 to December 2025. This Environmental and Social Management Plan (ESMP) has been prepared to meet national legislation and the World Bank Environmental and Social Framework (ESF) including project specific World Bank requirements i.e. Environmental and Social Commitment Plan (ESCP), Environmental and Social Management Framework (ESMF) and Labour Management Procedures (LMP), to ensure that the project is implemented in a sustainable manner. The ESMP is for both the construction and operation and maintenance phases where the contractor to undertake the works and the Ministry of Health and KCH Administration during operation phase will ensure that the proposed mitigation measures for the identified environmental and social risks and impacts are implemented.

* 1. **Justification of the project**

Rehabilitation of the selected sections of Kamuzu Central Hospital will be implemented under the Malawi COVID-19 Emergency Response and Health Systems Preparedness Project, which has sought rehabilitation and installation of various health facilities’ infrastructure in different health units of the country in response and preparation to COVID-19 pandemic future occurrences.

Kamuzu Central Hospital (KCH) is one of the largest referral hospitals in Malawi, located in the capital city, Lilongwe. It serves as a key healthcare facility for the central region of Malawi and provides a wide range of medical services, including specialized care. During the COVID-19 pandemic, KCH played a crucial role in managing and mitigating the impact of the virus in the country. At that time additional resources, including medical supplies and staff were provided to handle the surge in COVID-19 cases through support from international health organizations, NGOs, and donor agencies in the form of funding, equipment, and technical assistance. Furthermore, the hospital collaborated with local health centers and clinics to streamline patient referrals and manage the pandemic more effectively. However, despite efforts to effectively manage, KCH faced challenges including the hospital’s strained infrastructure among others due to the high volume of COVID-19 patients and other patients, leading to overcrowding in some cases. Infrastructural improvements to accommodate the increased patient load and to ensure better infection control practices is therefore essential. This sub-project under the Malawi COVID-19 Emergency Response and Health Systems Preparedness Project of rehabilitating the selected sections of the Kamuzu Central Hospital is therefore essential.

 A metal railing with a blue building behind it

Description automatically generated with medium confidence

Figure 1-1(b)

Figure 1-1(a)

Figures 1-1(a) and 1(b): Status of Windows and walls of some sections of the Main annex building at KCH

* 1. **Objectives of** **Kamuzu Central Hospital Rehabilitation project**

The objective of implementing the proposed rehabilitation works of selected sections of Kamuzu Central Hospital is to:

* Modernize hospital facilities to meet current healthcare standards including those specified by Medical Council of Malawi
* Strengthen infection control measures to reduce hospital-acquired infections emerging from dilapidated and unfavorable spaces.
* Improve the physical environment to enhance patient comfort and recovery.
* Enhance Patient Care by Improving the quality and accessibility of the infrastructure and respective medical services to ensure better patient outcomes.
* Improve the aesthetic value of the hospital
* Ensure the hospital meets all applicable EHS requirements and adequately corrects any existing significant environmental liabilities or structural or access limitations
  1. **Nature and scope of proposed project**

The rehabilitation works will be conducted at selected sections namely Main Annex and Radiology Department. The Radiology Department is a single-storey building while the Main annex building is A 5-storey building consisting of the following departments:

* 1A Male Surgical Ward
* 1B Neurosurgery & Urology Ward
* 2A Dialysis Unit
* 2B Physiotherapy Department
* 3A Female Surgical Ward
* 3B Burns Unit
* 4A Female Medical Ward
* 4B Male Medical Ward
* Medical High Dependency Unit (MHDU)

The proposed rehabilitation works of selected sections at Kamuzu Central Hospital will include the following works.

* **Roof:** Conduct flood test on the roof and sealing all leaks and replacing missing sections of steel gutter and downpipes and repaint entire drainage system.
* **Walls:** Brick wall demarcations on makeshift wards to meet standards of hospital wards specified by Medical Council of Malawi, **r**epairing hairline cracks and flaking paint, then repaint walls according to specified standards.
* **Doors:** Removing all existing doors that are worn out and replace them with approved doors as per specifications. General maintenance required on doors that are in better condition.
* **Floors:** Performing general maintenance on granolithic floors, and replace all tiles in all wet areas (patient toilets, staff toilets, sluice room); as well as replacing worn out Waterproof membrane at the courtyard and Terrazzo floor maintenance by re polishing and cleaning
* **Ceiling:** General maintenance, in the form of repainting and replacing damaged - worn-out ceiling boards to match existing where necessary.
* **Windows:** Replacing all rotten timber frames, maintenance on louvre systems that can be repaired, replace all broken and missing glazed panels.
* **Sanitary Fittings:** Replacing worn out sanitary fittings with new sanitary fittings in staff and patients WCs, sluice rooms and general wards.
* **Joinery Fittings:** Replacing all worn out joinery fittings with new joinery fittings in Shelving nurses’ station, staff kitchenette, sluice room and storerooms and in staff kitchen.
* **Electrical works inform of Power fittings:** supply and installation of appropriate electricals e.g. bulbs and socket outlet in spaces that require such.
* **Elevator:** The project will also undertake maintenance of the elevator during the construction phase to reduce accessibility problems for people living with disabilities, the sick and those with other vulnerabilities.
  1. **Justification of the ESMP**

The ESMP has been prepared in line with Guidelines for Environmental Impact Assessment (EIA) for Malawi of 1997 and specified guidelines. The study was also conducted in line with the World Bank Environmental and Social Framework (ESF) specifically ESS1 including the ESCP, ESMF, LMP, the General Environmental Health and Safety Guidelines (EHS) and Environmental, health and Safety Guideline (EHS) for Heath Care Facilities, which requires assessment and management of environmental and social risks and impacts. The Malawi Environment Protection Authority MEPA upon review of the project brief determined that an ESMP be developed. ToRs for the preparation of the ESMP from MEPA are presented in appendix 1. This ESMP was therefore essential as it identifies environmental and social impacts and suggests respective mitigation measures to be implemented during both construction and operation and maintenance phase.

* 1. **Objectives of the ESMP**

The main objective of this ESMP is to ensure project EHS compliance and improve the overall environmental and social performance of the proposed project during construction as well as operation and maintenance phase through identifying the potential positive and adverse impacts associated with the project. This process will help enhance beneficial impacts and minimize adverse impacts to ensure the project is implemented in a sustainable manner.

The specific Objectives of this ESMP were to:

* Identify and assess direct, indirect and cumulative environmental and social risks and impacts including those on gender, which may be caused by the proposed construction works.
* Propose measures that would enhance the positive effects of the proposed constructions and operation activities on both the environment and social components including gender issues in specific sites.
* Propose measures that will mitigate the anticipated negative impacts and risks of the proposed constructions and operation activities on both the environment and social components, including gender concerns in specific sites.
* To provide baseline information about the environmental, social, economic and cultural conditions in the project area.
* To identify project regulatory requirements including national policies and regulations such as Environmental Management Act (2017), National Environmental Policy (2004), Water Resources Act (2013), Land Acquisition Act (2017), the National Sanitation Policy and the World Bank Environmental and Social Framework and Environmental Health and Safety Guidelines (EHS).
* Conduct stakeholder consultative meetings which inform project key environment, social risks, and mitigation measures; and
* Develop a costed ESMP and monitoring plan with clear lines of responsibilities for key stakeholders.
* To ensure the project is in compliance to general EHS guidelines including the EHS guidelines for Health Care Facilities.
* To provide recommendations for future environmental protection during operation and maintenance of the project.
  1. **Approach and Methodology**

This ESMP has been prepared based on World Bank ESF requirements, that includes undertaking environmental and social assessment as guided by the Environmental and Social Management Framework (ESMF) specifically ESS1, the Project’s ESCP, LMP and WB General EHSGs General and EHS Guidelines for Health Care Facilities. The ESMP has been prepared through adopting the following methodologies.

***Literature review:*** This involved a desk review of various project documents such asWorld Bank ESF, World Bank EHS guidelines on health care management and national policies, laws, regulations, and guidelines related to environmental and social management. Project related documents, including the project’s Environmental and Social Management Framework (ESMF) and Environmental and Social Commitment Plan (ESCP) were also reviewed.

***Stakeholder Consultations and Interviews:*** This step involved soliciting views/ concerns about the project from relevant stakeholders. The purpose was to get stakeholders’ views and contributions on the identification of potential impacts of the project and identification of appropriate mitigation and enhancement measures for negative and positive impacts respectively. The stakeholders consulted included Kamuzu Central Hospital officials and Lilongwe District Environment Sub-committee (DESC). Participatory Rural Appraisal (PRA) methods were mainly applied during the consultations as they allow wider participation of stakeholders within a short period of time. During consultations, checklist was used with general information about the project delivered and followed by Q & A. Key Informant Interviews (KII) were also conducted with the relevant hospital staff. The approaches used ensured that there was open and interactive communication between the consultant and stakeholders. Stakeholders’ consultations were conducted on 26th July 2024 and 16th August 2024 at KCH and Lilongwe District Council respectively.

***Site visit*:** Site visit was conducted with guidance from Hospital Administrators, management and other officials. Site visits and a rapid audit of the facility were conducted for the whole hospital operations and identified issues that need to be worked on by the hospital management and Ministry of Health as outlined in table 1.1 below. The visit to the sections and impact areas of the hospital where rehabilitation works will be conducted was carried out the Consultants and to appreciate the proposed scope and sites. Other operations such as water supply, solid waste and hospital waste management site (incinerator) and potential areas where they will be designated as storage areas for the construction and hazardous materials and waste were also visited. The objective of the site visit was to assess the scope of work and site conditions and predict the potential positive and negative impacts that the project would bring. The site visits were undertaken between July and August 2024. During the site visit a rapid audit of the hospital was undertaken. Details of hospital deficiencies that were identified during the site visit have been provided in section 4.2.3 and summarized below:

**Solid waste:** The hospital has a Health Care Waste Management plan (HCWMP). There is a new incinerator which is used for managing health care waste. The incinerator \ has a tall chimney for ensuring that emissions are dispersed at high levels for effective dispersion. Wheelie bins for storing wastes before they are incinerated are inadequate. Waste segregation is inadequate. Many healthcare workers do not know appropriate infection control and waste management procedures. There are no records on amounts of waste of various types generated, treated, discharged etc. General waste such as food waste, paper, plastics, construction wastes and demolition wastes in different streams such as rubble, glasses, steel, wood etc. is generated. The waste is collected in bins around the facility and later disposed Lilongwe City Council waste disposal site at Area 38A. Waste storage areas are not enclosed

**Liquid waste**: The facility is connected to a sewerage system for the Lilongwe city now operated by Lilongwe Water Board. The system had challenges such as frequent blockages, inadequate water quality monitoring etc. when it was being operated by Lilongwe City council before the transfer of sewerage services to LWB. It is expected that the operation of the sewer system has improved since the transfer.

**Water supply:** The hospital uses approximately 16,371 m3 of water per month from Lilongwe Water Board. There were some small leakages in the water supply system. The rehabilitation activities will use about 871 m3 of water. The project during operations and maintenance will not increase water usage.

**Power supply:** The hospital relies on ESCOM power. Approximately, the hospital uses 398,230 kwh of electricity / month. Due to power outages, there are diesel-operated generators at the hospital that uses approximately 18.72 m3 diesel per month.

**Asbestos:** Asbestos was found in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ darkroom tile at the Kamuzu Central Hospital. Other sections although not tested for asbestos are likely contain asbestos such as floor tiles. The ACM Plan that has been developed will be implemented in future whenever sections of the hospital are to be rehabilitated, refurbished or demolished.

**Laboratory:** The laboratory has a safety officer. There has never been any major incident. The laboratory cannot handle specimen as it does not have a negative air pressure room. Basic PPEs such as laboratory coats, gloves and mouth masks are adequate. The laboratory observes triple packaging policy i.e. a specimen must be wrapped in an absorbent material, then a plastic and then a plastic container. Wastes are properly segregated into sharps, infectious wastes and non-infectious wastes. There are no food wastes in the laboratory as eating is not allowed.

**Other observations:** water intrusion and decay sections especially outside the main annex building which may harbor harmful bacteria or fungal spores.

* 1. **Potential users of the ESMP**

This ESMP contains useful information on the potential environmental and social impacts; measures for addressing the negative impacts and recommendations on enhancing the positive impacts by contractors and developers. Such information will be useful in planning and implementation of the proposed project activities. In this regard, the report will be useful to the following stakeholders: MC-ERHSPP project management team at national level and at KCH as the Implementing Institution, project consultants, project manager, project contractors, Lilongwe DESC, workers at the project site, key government agencies e.g., MoH and other interested parties.

* 1. **Organization of this ESMP**

This ESMP has been organized as follows: a) Chapter 1 is the introduction; b) Chapter 2 is description of the project; c) Chapter 3 describes the policies, legal and institutional frameworks applicable to the proposed project; d) Chapter 4 presents the Environmental and social settings of the proposed project site; e) Chapter 5 presents Public and Stakeholder Consultations f) Chapter 6 presents Environmental and social impact identification and analysis; g) Chapter 7 presents Environmental and Social Management and Monitoring Plans (ESMMPP); h) Chapter 8 presents Capacity Development training and reporting; i) Chapter 9 Grievance redress mechanisms (GRM) issues; and j) Chapter 10 presents Conclusions and recommendations for this ESMP study.

* 1. **Preparation of this ESMP**

This ESMP has been prepared by Infra Works Development Limited, the Design and Construction Supervision Consultant for the proposed rehabilitation project. The Consultant has however prepared this ESMP in consultation with the Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP).

Additionally, this ESMP has been prepared following recommendations from Malawi Environment Protection Authority (MEPA) (an Environment regulatory body in Malawi), followed by review by the same. The ESMP was submitted to MEPA for review and approval.

# **DESCRIPTION OF THE PROJECT**

**2.1. Introduction**

This chapter documents the detailed description and scope of the proposed KCH rehabilitation project. The chapter describes the project location, nature of the project components, outlines the project activities including main inputs and outputs of the project activities, final products, by-products, sources of raw materials at different phases of the project, land acquisition and ownership issues etc. The ESMP has been prepared based on the completed design of the project which was prepared by Infra Works Development Limited, the Design and Construction Supervision Consultant for the proposed rehabilitation project and was completed in September 2024.

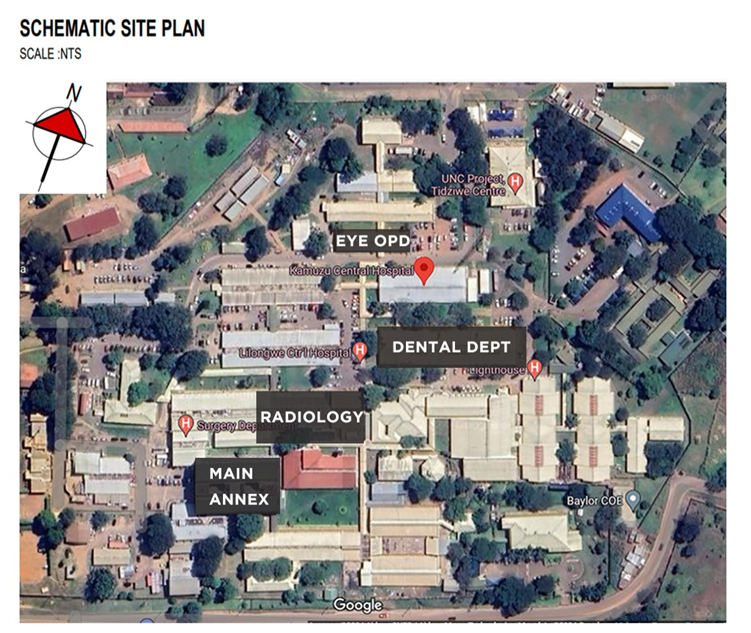
**2.2. Description of Project Location**

The rehabilitation works of the selected sections at Kamuzu Central Hospital will be carried out within the 1000 bed Kamuzu Central hospital premises, which is a tertiary referral hospital in Lilongwe. The KCH geographic coordinates are -13.976944 latitude and 33.786389 longitude along the Mzimba street in in Area 33, Lilongwe City (see Map in Figure 2-1).The rehabilitation works will be conducted at selected sections namely Main Annex and Radiology Department in which EHS Audit was already conducted prior to the proposed works and established presence of environmental liability such as Asbestos containing materials, and a notice of water intrusion and decay sections especially outside the main annex building which may harbor harmful bacteria or fungal spores. Other environmental liabilities such as volatile organic compounds (VOCs) due to use of oil-based paint or coatings, were not detected The Radiology Department is a single-storey building while the Main annex building is A 5-storey building consisting of the following departments:

* 1A Male Surgical Ward
* 1B Neurosurgery & Urology Ward
* 2A Dialysis Unit
* 2B Physiotherapy Department
* 3A Female Surgical Ward
* 3B Burns Unit
* 4A Female Medical Ward
* 4B Male Medical Ward
* Medical High Dependency Unit (MHDU)

Since the rehabilitation works will be carried out in an already existing Hospital, the land related issues will not arise during the project implementation including impact on flora and fauna. The areas that may be affected by the project are therefore the rehabilitated sections with respect to Patients, Guardians and Health workers in those hospital sections mostly due to the anticipated impact of displacement of services and space to create room for the works. Moreover, other hospital services will require to support rehabilitation works including, Potable water supply for cooking and drinking by construction workers, temporary storage spaces for construction materials, solid waste collection and disposal, hazardous waste treatment and disposal as well as Energy including back up. This ESMP therefore proposes practical mitigation measures to these impacts including specifying them in the Environmental and social planning and design section. The ESMP also recommends and ensures project design has included measures to ensure compliance with the WB ESS4 on (i) Infrastructure and Design and Safety, (ii) Safety of Services, (iii) Emergency Preparedness and Response, and (iv) management of Hazardous Materials. A Hospital Services and Patients Displacement Mitigation Plan has also been developed to ensure that the rehabilitation works does not affect the operations of the hospital. This plan is presented in appendix 9.

Schematic Map showing Kamuzu Central Hospital and the selected sections to which rehabilitation works are sought in Lilongwe is presented in Figure 2-1.



**Figure 2-1:** Map showing location of Kamuzu Central Hospital, and some sections proposed for the rehabilitation works

**2.3. Scope and Activities of the Project**

The project “Rehabilitation of the selected sections of Kamuzu Central Hospital” will involve components or activities as presented in Table 2-1.

Table 2-1: Components or activities of “Rehabilitation of the selected sections of Kamuzu Central Hospital”

| **No.** | **Development Component** | **Characteristics of the Component** | **Description** |
| --- | --- | --- | --- |
| 1 | ***Main Annex Building*** | A 5-storey building consisting of the following departments where works are proposed:  •1A Male Surgical Ward  •1B Neurosurgery & Urology Ward  •2B Physiotherapy Department  •3A Female Surgical Ward  •3B Burns Unit  •4A Female Medical Ward  •4B Male Medical Ward  •Medical High Dependency Unit (MHDU) | Replacing broken/ worn-out doors with new ones |
| Replacing all rotten timber window frames, maintenance on louvre systems that can be repaired, replace all broken and missing glazed panels. |
| Ceiling finishes with Nulite ceiling boards where necessary |
| Replacement of wooden boards partitions to brick walled partitions |
| Brick wall demarcations on makeshift wards to meet standards of hospital wards specified by Medical Council of Malawi, Wall finishes with crack filling and painting |
| Fixing the toilets including installation of new sanitary fittings |
| Electricals replacements and fittings |
| Floors Rehabilitation with non-slip porcelain floor tiles in affected areas where there were originally fitted with tiles |
| Dilapidated floors replacement including replacement of worn-out tiles and installing new waterproof membrane on the courtyards having worn out waterproof membrane |
| Replacement of all worn out joinery fittings with new joinery fittings. |
| The project will also undertake maintenance of the elevator during the construction phase to reduce accessibility problems for people living with disabilities, the sick and those with other vulnerabilities. |
| 2 | ***Dialysis Unit*** | 2A Dialysis Unit | Procurement of curtains for the unit |
| Installation of user-friendly elbow sink(s) and reception sinks in the unit |
| 3 | ***Radiology Department*** | Single Storey Building | Removal of some walls to create larger space for the Radiology Department |
| Wall finishes with painting and decorating. |
|  | Floors rehabilitation with non-slip porcelain floor tiles |
|  | Replacement of wooden boards partitions to brick walled partitions |
|  | Fixing the toilets including installation of new sanitary fittings |
|  | Electricals |
|  | Ceiling finishes with Nulite ceiling boards where necessary and roof sealing |
|  | Replacing nonfunctional Air conditioners |

The development components of this proposed project have been selected with insights and advice from the management of the hospital, following site visits that were conducted for the project. The state of the structures of some infrastructure to undergo rehabilitation are shown in Figures 2-2(a), 2-2(b);

  Figures 2-2 (a) and 2-2 (b)

Figure 2-2(b): Status of Worn-out Waterproof membrane at the Male Orthopedic ward (1B) at KCH

Figure 2-2(a): Status of some doors at KCH

**2.4. Main Inputs and Outputs at different phases of the project**

### 2.4.1. Rehabilitation/ construction phase inputs and outputs

The knowledge of inputs and materials and how they will be used in the project cycle may help to understand environmental and social impacts emanating from the project activities. The main inputs and outputs during construction phase refer to those that will be associated with the rehabilitation activities of the infrastructure on the proposed site. The generalised inputs and outputs of the rehabilitation activities at KCH are summarised in Table 2-2.

Table 2-2: Inputs and outputs for rehabilitation works at Kamuzu Central Hospital

|  | **Rehabilitation activity** | **Inputs** | | **Outputs** |
| --- | --- | --- | --- | --- |
|  |  |  | **Sources** |  |
| 1 | Replacing of door and all windows with rotten timber frames, maintenance on louvre systems that can be repaired, replace all broken and missing glazed panels | -Labour (human)  -The windows and doors and their respective frames  -Cement  -Glass | -Community and Migrant workers  -Contractor  -Project financing | -Employment of locals and migrant workers  -Demolition waste  -Noise  -Dust emissions  -Broken glass |
| 2 | Ceiling finishes replacement and finishes in all areas of the Main Annex building and Radiology Department with dilapidated ceilings | -Labour (human)  -The timbers for blundering  -Ceiling boards  -Ceiling paint | -Community and Migrant workers  -Contractor  -Project financing | -Employment of locals and migrant workers  -Demolition waste  -Noise, Paints smell |
| 3 | Floors rehabilitation with floor tiles and installation of waterproof membrane in the courtyards | -Labour (human)  Waterproof membrane materials  -The Floor tiles, accessories and Tile adhesives  -Water | -Community and Migrant workers  -Contractor  -Project financing  -Water from the nearby river | -Employment of locals and migrant workers  -Demolition/ construction waste  -Noise  -Dust emissions  -Hazardous materials e.g. Asbestos |
| 4 | Wall finishes with crack filling, painting and decorating of all walls except in Dialysis unit. | -Labour (human)  -Paints  -Paint  -Water | -Community and Migrant workers  -Contractor  -Project financing  -Water from the nearby river | -Employment of locals and migrant workers  -Paints smell  -Hazardous materials e.g. asbestos release |
| 5 | Fixing the toilets and bathrooms (Sanitary fittings) in all wards | -Faucet and Showerhead  -Toilet Components  -Plumbing tools, sealants and adhesives  -Labour (human)  -Water | - water  -Plumbing materials through registered Merchants  -Community and Migrant workers  -Contractor | -Employment of locals and migrant workers  -Solid and liquid waste generation |
| 6 | Replacement of wooden boards partitions to brick walled partitions in spaces where they exist | -Water  -Cement  -Cement blocks/ bricks, boulders,  -Labour  -Construction vehicles | - water  -Construction materials through registered Merchants  -Community and Migrant workers, -Contractor | -Employment of locals and migrant workers  -Construction wastes  -Dust emissions  -Solid and liquid waste generation |
| 7 | Replacement of all worn out joinery fittings with new joinery fittings. | -Timber  -Joinery fittings  -Labour | -Community and Migrant workers  -Contractor  -Project financing | -Employment of locals and migrant workers  -Demolition/ construction waste  Noise and Dust emissions |
| 8 | Connecting the makeshift wards with the rest of the wards as per the regulation | -Labour (human)  -Cement and bricks  -Water  -Equipment such as concrete mixers  -Paints | -Community and Migrant workers  -Contractor  -Project financing  -Water from the nearby river | -Employment of locals and migrant workers  -Demolition/ construction waste  -Noise and Dust emissions  -Potential spillages on soil of the oils from machinery |
| 9 | Undertake maintenance of the elevator to improve access to people living with disabilities, the sick and those with other vulnerabilities. | Labour (human)  Electrical installations | Community and Migrant workers  -Contractor  -Project financing | - Employment of locals and migrant workers |

Table 2.3. Estimated quantities of inputs for the construction/rehabilitation works and outputs for KCH

|  |  |
| --- | --- |
| **Inputs for construction activities** | **Estimated quantities** |
| Sand | 1933m3 |
| Cement | 644 m3 |
| Water | 851 M3 |
|  |  |
| **Estimated quantities of key outputs for Kamuzu Central Hospital** | |
| **Outputs for the entire hospital** | **Estimated quantities** |
| Water | 16,371 m3 per month |
| Power | 398,230 kwh/ month |
| Diesel | 18.72 m3 /Month |
| Solid waste | 17,923.00 kg/month |
| Liquid waste | 11,459 m3/month |

**2.5. Environmental and social planning and design**

The project is expected to interact with both the social and physical environments on the site. This interaction will certainly lead to some impacts that may be positive or negative in nature. In consideration of the potential risks and impacts of the works on the environment and society of the project; preliminary mitigation measures and action plans are established to improve environmental and social performance of the project while ensuring that the identified environmental and social risks and impacts of the project, are minimized and managed. Thus, the inclusion of these issues in the detailed designs will ensure that identified negative impacts are mitigated and positive ones are enhanced. The environmental and social planning and design issues considered are 1) service and patients’ displacement, water supply for construction activities, and sanitation and waste management at the project site.

### 2.5.1. Hospital services and Patients displacement Planning and Design

Displacement and disruption of hospital services and patients is the major impact of the rehabilitation works at KCH. There is therefore needed to implement planning and design strategies, that can significantly reduce the impact of rehabilitation on hospital services and patient displacement, ensuring continuity of care and maintaining a high standard of patient and staff satisfaction throughout the project. The following strategies will be considered.

1. **Phased Construction**: Develop a phased construction plan that prioritizes critical areas and minimizes disruption to hospital services.
2. **Timeline Management**: Create a detailed timeline with milestones to ensure the project stays on track and disruptions are minimized. (Hospital Services and Patients Displacement Plan has been prepared in this ESMP and presented as Appendix 9)
3. **Stakeholder Involvement**: Involve hospital staff, administrators, and patients in the planning process to understand their needs and concerns.
4. **Regular Updates**: Provide regular updates to all stakeholders about the project’s progress and any potential impacts on services.
5. **Temporary Relocation Strategies**: Utilize alternative or Unused Spaces where available: Repurpose unused or underutilized spaces within the hospital to temporarily accommodate displaced services.
6. **Service Continuity Measures**: Prioritization of Critical Services - Ensure that critical and emergency services remain operational and are prioritized in the planning and construction phases.
7. **Staggered Displacement**: Plan for staggered displacement of services to avoid overwhelming any single area or department.
8. **Communication and Coordination**: Clear Communication through information campaigns to keep patients, staff, and visitors informed about the project and any changes to services.
9. **Signage:** Use clear and ample signage within the hospital to direct patients to temporary locations of services.

### 2.5.2. Water supply planning and design

The rehabilitation works will have an implication on treated water use for construction activities if other sources may not be used, while at operation and maintenance, improvements will emerge due to reduced leakages and reduced problem of proper functioning toilets which will be maintained by the project. The facility is connected to piped water supplied by Lilongwe Water Board (LWB) and uses approximately 16, 371m3 of water monthly. This being the case, if the rehabilitation works will use water from LWB at construction, the water bill may increase, and water resource efficiency may be compromised .This will be addressed by utilizing alternative water sources by tapping from the nearby Lilongwe River – a perennial river which is within one kilometer radius from KCH) for construction purposes and only drawing water from the treated water system for drinking and cooking purposes while making sure that arrangements for payment of the additional bills are in place. Approximately 851 m3 of water will be needed for the rehabilitation works. The contractor will also develop and implement a water resources management plan as part of the Contractor’s ESMP while also making sure that efficient sanitary facilities are installed to reduce water losses and bills during operation and maintenance.

### 2.5.3. Waste management planning and design

At KCH there is an existing high temperature, two chamber mechanical incinerator for health care wastes. The incinerator is new (installed in 2015) and is working well. It is big and it can take in additional waste and designed to handle all infectious hospital waste. During operation and maintenance, the facility will still use it for incineration of the waste. The incinerator has the ability to burn 300 – 500 kg waste/batch, 3 to 6 times a day. It has two chambers; the first chamber is where wastes are loaded and burning takes place whereas the second chamber allows for re-burn of harmful emissions, thereby reducing air pollutants. The incinerator also has a tall chimney for ensuring that emissions are dispersed at high levels for effective dispersion. The incinerator is in excellent condition and has the capacity and design specifications to properly handle additional highly infectious waste. There is also an ash pit is at the facility for disposal of ash leftover from the incineration process.

Waste at rehabilitation phase will includes food waste, paper, plastics, construction wastes and demolition wastes in different streams such as rubble, glasses, steel, wood etc. There are no records on amounts of waste of various types generated, treated, discharged etc. Waste storage areas are not enclosed.

The waste will be collected in bins around the facility and later disposed Lilongwe City Council waste disposal site at Area 38A. Receptacles for temporary storage of waste during both the construction and operation phase will be provided

Kamuzu Central Hospital mainly uses flush toilets for human wastes some of which are going to be rehabilitated under the project. Liquid waste for Kamuzu Central Hospital is disposed in a sewer line which connect to LWB sewage works. The Sewage Treatment Plant for the Council is at Kauma and effluent is discharged in Lilongwe River. The operation of the sewer system has been transferred from Lilongwe City Council to Lilongwe Water Board. The operations of the sewer system have improved since the transfer, as previously there were challenges in water quality monitoring and frequent blockages.

### 2.5.4. Asbestos finds and exposure risk reduction planning and design

The 2024 asbestos assessment report by Consulting Occupational Hygienist cc. (COH) which targeted all departments earmarked for rehabilitation at KCH (i.e. Main Annex building, Dental, Eye Department OPD and Radiology and as shown in Figure 2-1) analyzed and identified presence of Asbestos in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ darkroom tile at the Kamuzu Central Hospital. The summary is provided on Table 2-3 below.

Table 2-3: Sections of the Kamuzu Central Hospital that has Asbestos

|  |  |  |
| --- | --- | --- |
| **Sample** | **Description** | **Results** |
| 16760 / 1 | Ward 4A & 4B – Panel (in Main Annex Building) | Tested positive for the presence of Chrysotile (White asbestos) |
| 16760 / 2 | Radiology – Floor tile | Tested positive for the presence of Amosite (Brown asbestos) |

The project will involve rehabilitation/ disturbance of these areas with asbestos panels and tiles and other older buildings walls, ceilings and floors of some of these sections and/or building constructed before 1980s. Asbestos fibers released into the environment has health implication in humans when inhaled. These fibers can cause severe respiratory diseases, including asbestosis, lung cancer, and mesothelioma, which can take decades to manifest after exposure. Construction workers, Hospital building occupants, and nearby residents are at risk of inhaling airborne asbestos fibers during and after the rehabilitation process. The plan for the management of asbestos-containing materials in departments/ sections where rehabilitation works will be undertaken is provided in appendix 8.

Thus, Asbestos containing materials were detected in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ dark room tile at the Kamuzu Central Hospital as such the plan for Asbestos abatement covers only spaces that will undergo rehabilitation as it is a fact that even if other areas may have Asbestos containing materials, as long as they are not disturbed, cannot be emitted into the environment to cause harm. However, during operation and maintenance, KCH should customize and implement the ACM plan whenever some sections of the hospital are to be rehabilitated, refurbished or demolished. With respect to this and that the targeted departments are older buildings, asbestos-containing materials might also typically be found, in the following products and structures, which will likely be disturbed as part of rehabilitation of KCH

1. **Building Materials**

* **Insulation**: Asbestos was commonly used in insulation materials, including Pipe insulation especially hot water pipes, attic and wall insulation in older homes, particularly those built before the 1980s and Fireproofing insulation: Sprayed on beams, ceilings, and walls.
* **Roofing Materials**: Asbestos was often included in roof shingles especially in older homes.
* **Flooring** especially vinyl floor tiles particularly those made before the 1980s, Sheet vinyl flooring: Often with asbestos backing and floor adhesives used to install tiles and other flooring materials.
* **Cement Products** such as asbestos cement sheets used for roofing, siding, and in corrugated forms and cement pipes used in water systems and other infrastructure.
* **Ceiling Materials** acoustic ceiling tiles found in older commercial and residential buildings.
* **Wall Panels and Drywall**: Asbestos-containing drywall particularly in older buildings and joint compound used in drywall installation and repair.

1. **Electrical Components**

* Especially electrical Insulation found in old wiring and electrical panels, and fire doors where asbestos was used in the core of some fire doors to provide fire resistance.

Despite preliminary detection of ACMs in Ward 4A & 4B – Panel and Radiology – Floor tile at KCH, the rehabilitation works will further involve removal and replacing some of these building materials and electrical components from other sections of the old building, the risk of asbestos containing materials and respective exposure can even be more pronounced. This ESMP therefore provides the ACM management plan (See appendix 8) to be implemented when handling ACMs before and during rehabilitation works in the sections of the hospital identified to contain asbestos.

## 2.6. Other Environmental Considerations within the Project

### 2.6.1. Environmentally friendly construction materials

The use of environmentally friendly construction materials may be incorporated in the designs of the buildings associated with the project. Some examples are as follows:

1. The use of concrete bricks/blocks than using burnt brick in the construction of walls, etc. The use of cement bricks will reduce demand for locally burnt bricks which exert serious pressure on limited land and forest wood resources in production and burning process.
2. The use of steel metal (as opposed to wood planks) in scaffolding requirements. The choice of steel will reduce pressure on use of wood.

2.6.2. Monitoring for Emissions, Wastewater, Solid waste, Hazardous waste and Air quality Emissions, Air quality, wastewater, solid waste and hazardous waste will need to be monitored during construction as well as operation and maintenance phase. The monitoring plan for these aspects has been provided in appendix 10. This plan will have to be included in the C-ESMP and ensure implementation. The responsibility for monitoring will be with the Hospital administration and relevant Government agencies such as ministry of Health, Malawi Environment Protection Authority, National Water Resources Authority etc.

# POLICIES, LEGAL AND INSTITUTIONAL FRAMEWORK

This Chapter provides an overview of the Malawi national policies, legislations and regulation and World Bank Environmental and Social Standards relevant for the implementation of the proposed project.

* 1. **Policies and Legal Framework**

The project will adhere to these instruments in the form of national policies and legislations and the World Bank’s Environmental and Social Standards.

Table 3-1 summarizes the relevance of the policies and legislations to the proposed project and how the project will ensure compliance.

Table 3‑1: Summary of relevant national and World Bank policies and standards

| **Regulatory Frameworks** | **Relevance to the Project** |
| --- | --- |
| **National Policies** | |
| The National Environmental Policy, 2004 | * Promotes adherence to sound management of the environment and natural resources through promotion of sustainable social economic development against sound management of the environment and natural resources such as water, soil, flora and fauna. This rehabilitation project will involve using chemical-based materials such as paint and sealants. Preventing contamination of water and soil from these materials will be a way of adhering to this policy. Mitigation measures of secure storage of these materials have been suggested and should be considered by the contractor |
| National Health Policy, 2017 | * Aims at overcoming challenges of sub-optimal healthcare service provision; as such it singles out provision of adequate health care, commensurate with the health needs of Malawian society and international standards of health care” as its main objective. The policy mentions “Medical Equipment and Infrastructure” as among priority areas. This project will involve improving health care infrastructure by rehabilitation for the hospitals selected sections. This therefore directly supports the National Health Policy by improving health related infrastructure and thereby enhancing health service quality. |
| National Sanitation Policy, 2006 | * Provides guidelines and an action plan for access to improved sanitation, safe hygienic behavior, recycling of solid and liquid waste practices for healthier living and better environment. The proposed project will have to ensure that liquid and solid waste management is given full consideration complying with the provisions of the policy. |
| National Water Policy, 2004 | * Section 1.3 provides an enabling framework for integrated water resources management in Malawi. Through this policy, the protection and use of water resources has been accorded the highest priority over other uses by this policy. Water is one of the highest required materials in this project during both rehabilitation works implementation and operation phases. The implementation of water-efficient practices and technologies is proposed during the rehabilitation works and may benefit this policy. |
| National Decentralization Policy, 1998 | * Through section 2a, b, c, d and e, the policy Advocates for involvement of decentralized structures at district and local levels in implementation of public related activities of the project such as managing infrastructure which will be developed by this project. Through this policy, Lilongwe district councils decentralized structures have been involved as stakeholders and should continue being involved in the ESMP implementation and throughout the project life cycle. |
| Infection Prevention and Control Policy (2006) | * Under the Infection Prevention Control (IPC) section, the policy stipulates that all health care facilities (public and private) in Malawi shall have an active IPC program in place; aimed at promoting IPC practices and surveillance focusing on clients, patients, health care personnel and the environment. As such the rehabilitation of some sections of KCH is part of the IPC program for the hospital. |
| Child Protection Policy, 2013 | * Section X.1 of the policy outlines the guidelines and measures necessary to ensure the safety, health, and well-being of children. One of the general principles under section X.2 is that Children have the right to a healthy and safe environment. Rehabilitation works of KCH must not compromise this right. Through this project, site assessment and safety measures should ensure that children are protected and are safe. This should include putting in place a fence around construction areas to avoid access by children, and in adherence to this policy. |
| The National Gender Policy, 2015 | * The policy strengthens gender mainstreaming and women empowerment at all levels in order to facilitate attainment of gender equality and equity in Malawi. As stipulated in section 1.3, the National Gender policy provides guidelines for mainstreaming gender in various sectors of the economy to reduce gender inequalities and enhance participation of women, men and youth for sustainable and equitable development, as well as poverty eradication in the country. Section 3.6 recognizes persistent gender inequalities and under-representation of women in decision making positions at all levels. This policy therefore seeks to address such gender imbalances. Additionally, Section 3.7 of the policy recognizes that Gender Based Violence (GBV), especially violence against women, girls and the vulnerable groups, is a severe impediment to social well-being and poverty reduction. * The proposed project should therefore consider the needs of women, men, boys and girls in all project activities including employment and give equal opportunities for both genders. Deliberate effort should be made to ensure that among the employees, at least 40% should be women. Also, the contractor should make sure that issues of GBV are properly redressed throughout the project cycle in accordance with this policy. |
| **National Legislations** | |
| The Constitution of the Republic of Malawi, 1995 | * Section 13, establishes a framework for sustainable environmental and social management, promoting welfare and development through responsible policies and legislation. In section 13(d) it also integrates environmental and social considerations into development programs, requiring the government, partners, and private sector to ensure environmentally and socially responsible projects. Therefore, this ESMP has been developed in compliance with this constitution. In addition, project management team will ensure that this ESMP is implemented by the contractor during rehabilitation works. |
| The Environment Management Act, 2017 | * Ensures clean and healthy living environment for the project implementers, and the surrounding environment in which the project is being implemented. Part II of the Act indicates that (1) Every person shall take all necessary and appropriate measures to protect and manage the environment, to conserve natural resources and to promote sustainable utilization of natural resources. This ESMP development for implementation throughout the KCH rehabilitation project life cycle, underscores adherence to the principle outlined in this Act |
| Atomic Energy Act, 2011 | * Primary legislation governing the use of ionizing radiation in Malawi. This act establishes the Atomic Energy Regulatory Authority (AERA), which is responsible for regulating and controlling the use of radioactive materials and radiation-emitting devices to ensure safety and protection of people and the environment. Emphasizes the importance of adhering to radiation protection principles and safety standards. Section 23 provides Radiation Protection Principles and among them are that 1) All facilities using radiation sources, including X-ray machines, must adhere to principles of radiation protection to minimize occupational exposure. 2) Measures must be in place to protect the public from exposure to radiation. This includes the proper design and maintenance of radiation rooms to ensure they meet safety standards as well as preventing any radiation leaks, which are the works promoted relevant to the rehabilitation of radiology section of the KCH. |
| Radiation Protection Regulations, 2013 | * Part III of the act provides for requirements for radiation facilities and specifically Section 10, provides the for the design and shielding requirements that 1) All X-ray facilities must be designed to minimize radiation exposure to workers, patients, and the public.2) The design must ensure that the structure and layout of the Radiology Department provide adequate shielding to confine radiation within the designated areas and 3) The Radiology facilities must be constructed with appropriate shielding materials (e.g., lead-lined walls) to ensure that radiation levels outside the room comply with regulatory limits. The Radiology department rehabilitation project seeks to advance these requirements and hence contributes to the law. |
| National Local Government Act, 1998 | * The act mandates local governments to regulate planning and development within their jurisdiction and empowers them to have by-laws that specify, among other issues, how development projects should minimize or avoid environmental degradation. Part IV second schedule includes provisions for waste management, specifically, empowering local assemblies to establish, maintain, and manage services for the collection, removal, and treatment of solid and liquid waste, ensuring safe disposal and treatment. The project implementation will lead to generation of different streams of waste. The Lilongwe City Council with respective relevant officers will have to be involved to ensure the contractor complies with waste management and disposal standards that minimizes environmental degradation. |
| Water Resources Act, 2013 | * The Act provides for the control, conservation, apportionment and use of water resources. Section 44 requires that people or companies who want to use water other than domestic uses to apply for permission from the National Water Resources Authority before abstraction. The Contractor should consider applying for water rights if surface water will be used during rehabilitation works of the project. |
| Occupational Health and Welfare Act, 1997 | * The Act through Section 13 regulates the requirements for adequate environmental health and safety measures within workplaces. This Act applies to this project because it will engage a contractor who will employ people, and the act stipulates that it is the duty of every employer to ensure the safety, health and welfare at work of all employees. |
| Gender Equality Act, 2013 | * The Act seeks to promote gender equality, equal integration, influence, empowerment, dignity and opportunities for men and women in all functions of society; to prohibit and provide redress for sex discrimination, harmful practices and sexual harassment; to provide public awareness on promotion of gender equality. Section 6 addresses non-discrimination in employment based on gender and Section 6 addresses non-discrimination in employment based on gender and Section 7 sets a provision for workplace policy to address issues of sexual harassment including defining the vice as a form of physical conduct like rape, verbal conduct like comments on a worker’s appearance and nonverbal conduct like whistling. The contractor should therefore ensure that both men and women have equal opportunities and treatment in the workplace, and that sexual harassment issues should be redressed at the workplace as per this Act. |
| Public Health Act, 1948 | * The Act creates the legal framework for the protection of public health in Malawi and for this purpose provides for powers of the administration to regulate and control among others handling of water supply, sewerage, etc. Part X of the Act addresses the conservation of water, drainage, and sewerage, emphasizing the importance of maintaining these systems to safeguard public health. This is a construction project as such, if not properly managed, it may have an impact on water access and use at the health facility including sewerage system. The contractor and the local hospital management should work together to make sure construction doesn’t negatively affect water supply and sewerage systems at the facility. |
| Environment Management (Waste Management & Sanitation) Regulations, 2008 | * The regulations apply to the management of general and municipal waste in Malawi. Part III of the regulations has provisions on management of general or municipal solid waste with Section 7(1) regulating that any person who generates solid waste shall sort out the waste by separating hazardous waste from the general or municipal solid waste. The rehabilitation works will generate various waste streams. The waste generated at the site is therefore responsibility of the contractor and should therefore be disposed of at sites designated by Lilongwe City Council. |
| **World Bank’s Safeguard Policies** | |
| ESS1: Assessment and Management of Environmental and Social Risks and Impacts | * ESS1 sets out for the assessment, management and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards. ESMP has been prepared in adherence to this standard and the Contractor will need to adhere to principles of the ESMP including developing Contractor’s ESMP. |
| ESS 2: Labour and Working Conditions | * Provides the World Bank’s requirements on occupational safety and health for all programs/projects. ESS2 introduces labour management procedures (LMP); emphasizes non-discrimination and equal opportunity; provides for the treatment of direct, contracted, community, primary supply workers and civil servants. It also provides for protection of vulnerable workers such as women, persons living with physical disabilities and children from labour. Additionally, the standard spells out the need for a grievance mechanism for all workers as an accessible means to raise workplace concerns and its respective ways of redressing the grievances. * This ESMP recognizes the labour issues and suggests mitigation measures in relation to labour issues that are in line with this ESS. The contractor should adhere to mitigation measures suggested in this ESMP and commit to prepare a separate OHS Management plan in line with WBG ESS2. |
| ESS 3: Resource Efficiency and Pollution Prevention and Management | * Recognizes that development often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle. Under this standard, KCH rehabilitation project which has this ESMP prepared to make sure pollution is prevented during construction and operation and resource efficiency in water is achieved. See Appendix 5 |
| ESS 4: Community Health and Safety. | * Recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. ESS4 also addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of implementers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. This ESMP has been prepared and among other impacts, it recognizes impacts on community health and safety and suggests measures to address and/or avoid such. The contractor will have to adhere to measures specifies in the ESMP |
| ESS 10: Stakeholder Engagement & Information Disclosure | Recognizes the importance of open and transparent engagement between the developers and project stakeholders as an essential element of good international practice. Recognizes that effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. Additionally, where properly designed and implemented, it supports the development of strong, constructive and responsive relationships that are important for successful management of a project’s environmental and social risks. Stakeholder engagement has also been recognized in the development of this ESMP with both institutional, community members and district authorities being consulted.   * The ESMP has also suggested involvement of other stakeholders at all levels during the monitoring of the implementation of the suggested enhancement and mitigation measures for various impacts, so as to address the project’s environmental and social risks and/or impacts. The project has also the GRM in place and through this mechanism, communities as relevant stakeholders will also be engaged by being part of the GRM structure for the project. |

* 1. **List of Statutory Licenses, approvals and Agreements Required for Implementation of the rehabilitation project at Kamuzu Central Hospital.**

**Table 3.2:** List of statutory licenses, approvals and agreements required for implementation of Rehabilitation works at Kamuzu Central Hospital

|  |  |  |  |
| --- | --- | --- | --- |
| **List of statutory approvals or licenses to be obtained** | **Regulatory frameworks** | **Responsible Department/ Office** | **Responsible officer** |
| 1. **Environmental and Social Management Plan Approval:** *To guide the synchronization of environmental management practices.* | Environment Management Act, (2017) | Malawi Environment Protection Authority and World Bank | Director General, Malawi Environment Protection Authority and World Bank |
| 2. **Workplace Registration Certificate:** *To guide on procedures on workers environmental health, safety during project implementation and operations.* | Occupational Health, Safety and Welfare Act (1997) | Ministry of Labour | Director of Occupational Health, Safety and Welfare. |
| 3. **Water rights for abstraction**, *To regulate mechanisms of water abstraction for use in various planned activities.* | Water Resources Act (2013) | Water Resources Board | Director for Water Resources / Southern Region Water Board |
|  |  |  |  |
| 1. **Hazardous waste collection, transport and disposal agreement:** *To guide collection, transport and disposal of Asbestos containing materials* | Environment Management Act, (2017) | Malawi Environment Protection Authority | Director General, Malawi Environment Protection Authority |
| 1. **Solid waste collection, transport and disposal agreement:** *To guide collection, transport and disposal of solid waste* | Lilongwe city Council by-laws | Lilongwe City Council | Chief Executive Officer, Lilongwe City Council |

**3.3. Other EHS standards that must be achieved during project Implementation**

**Table 3.3:** Other EHS standards that must be achieved during project Implementation of Rehabilitation works at Kamuzu Central Hospital

| **Parameter** | **EHS standards** |
| --- | --- |
| Air Quality | PM10: 50 µg/m³ (24-hour average) |
| PM2.5: 25 µg/m³ (24-hour average) |
| CO: 10 mg/m³ (8-hour average) |
| NO2: 200 µg/m³ (1-hour average) |
| SO2: 500 µg/m³ (1-hour average) |
| Wastewater | **BOD5 (Biochemical Oxygen Demand)**: Maximum 50 mg/L |
| **COD (Chemical Oxygen Demand)**: Maximum 250 mg/L |
| **TSS (Total Suspended Solids)**: Maximum 100 mg/L |
| **Ammonia**: Maximum 10 mg/L |
| **pH**: 6 – 9 |
| **Oil & Grease**: Maximum 10 mg/L |
| Water Quality | **pH**: 6.5 – 8.5 |
| **Total Dissolved Solids (TDS)**: Maximum 1000 mg/L |
| **Turbidity**: 5 NTU (Nephelometric Turbidity Units) |
| **Coliforms**: Should be absent per 100 mL |
| **Arsenic**: Maximum 0.01 mg/L |
| **Chloride**: Maximum 250 mg/L |
| Noise Levels | **Patient Rooms (Daytime)** 30-40 dB(A) |
| **Patient Rooms (Nighttime)** 25-30 dB(A) |
| **General Hospital Areas** 40-45 dB(A) |
| **Intensive Care Units (ICU)** 40 dB(A) or less  **Operating Rooms** 40 dB(A) or less |
| **Staff Rooms,** 45 dB(A) or less |
| **Patient Rooms (Daytime)** 30-40 dB(A) |
| Solid Waste Management | **Segregation into organic, recyclable, and non-recyclable categories.** |
| **Regular collection and transportation using appropriate vehicles** |
| **Disposal in sanitary landfills with proper leachate management** |
| **Encouragement of recycling, composting, and waste minimization practices.** |
| Hazardous Waste Management | Identification and classification of hazardous waste (chemical, medical, e-waste). |
| Safe storage in designated facilities with spill containment |
| Transportation using labeled and secure containers |
| Disposal through incineration or secure landfilling with proper safeguards |
| Personal protective equipment (PPE) for workers handling hazardous waste. |

# 

# ENVIRONMENTAL AND SOCIAL SETTINGS

This section describes the existing conditions regarding the physical, biological and Socio-economic environment of the proposed site for the Kamuzu Central hospital rehabilitation project.

* 1. **The Physical Environment of the Project Area**
     1. **Temperatures**

Lilongwe, including the area around Kamuzu Central Hospital, experiences a subtropical climate characterized by distinct wet and dry seasons. The temperatures are moderate due to the city’s elevation of around 1,050 meters (3,445 feet) above sea level.The hottest months are from September to November, with average daytime temperatures ranging from 25°C to 30°C.Temperatures can occasionally exceed 32°C during heatwaves. The coolest months are from June to August, with average daytime temperatures ranging from 17°C to 25°C. Nighttime temperatures during this period can drop to around 7°C to 12°C.

* + 1. **Rainfall Patterns**

The project site as many parts of Lilongwe and Malawi are characterized by wet and dry seasons. The rainy season typically occurs from November to April. During this period, Lilongwe receives most of its annual rainfall, with the heaviest rains occurring between December and March. Average annual rainfall are about 800 to 1,200 millimeters, depending on the specific year and climatic conditions. Rainfall is often in the form of thunderstorms, result in heavy downpours over short periods. The rainy season can be utilized for the project activities in such a way that rainwater can be harvested for construction activities, if need be, to reduce demand for treated water for construction activities. The dry season on the other hand lasts from May to October, with little to no rainfall. During this period, the weather is generally dry and sunny, and the risk of water shortages can increase, affecting the water supply in the area.

* + 1. **Surface soil**

The rehabilitation project at KCH will be implemented within the existing hospital structures and/or buildings. Though site visit conducted, it was noted that the surroundings of the buildings targeted for rehabilitation have paved surfaces, such that soils were hardly seen within the vicinity of the targeted structures. This implies that the project will not have significant negative impacts or disturbance of surface soils. However, spaces likely to be designated for construction material storage will be land spaces with soils which are a combination of Cambisols and Ferralsols which are deeply weathered soils and are rich in iron and aluminum oxides and often have a reddish or yellowish color due to the accumulation of these minerals. These soils are well-drained and suitable for construction activities.

* + 1. **Ground water: depth, quality and nearby uses**

The depth to groundwater or the water table at Kamuzu central hospital vary depending on the rainfall, and the seasons. However, typically, the areas are within moderate to high rainfall and close to Lilongwe river (within 500 meters radius) as such the water table is usually within10 meters below the surface although it could be deeper depending on seasonal variations, with the water table typically being higher during the rainy season and lower during the dry season.

With respect to the quality of groundwater in the vicinity of Kamuzu Central Hospital, it is influenced by various factors, including land use, industrial activities from nearby uses, and local water management practices. For

Salinity and Hardness, it is moderate hardness, which may be due to the presence of calcium and magnesium salts in the underlying rock layers. Salinity levels are considered potable with appropriate treatment, though contaminants such as nitrates and microbes are inevitable due to potential sewage infiltration, industrial waste, and agricultural runoff.

Groundwater in the area surrounding Kamuzu Central Hospital is primarily used for irrigation, construction and industrial purposes, though in some instances it has been used for drinking, with wells and boreholes being common, despite being within an urban area where drinking untreated water from underground sources is not allowed due to its increased contamination. This is mostly in areas not connected to the main municipal water supply. However, KCH, being a large hospital, it relies on municipal water supply for its daily operations.

* + 1. **Wind speed and direction**

The dominant wind direction in Lilongwe including area around KCH, tends to be from the southwest or west, driven by the southern hemisphere trade winds and the seasonal inter-tropical convergence zone (ITCZ) especially during the dry season (May to October). These winds generally bring dry air during this period. During the wet season (November to April), the wind direction shifts slightly towards the northeast as moisture-laden winds from the Indian Ocean bring rains to the region.

Wind speeds on the other hand are moderate to strong, particularly in the afternoons during dry season. In wet season, wind speeds generally decrease but can still be moderate, especially during thunderstorms and rainy days. The average wind speeds generally range from 2 to 5 m/s (7 to 18 km/h) during the year, with wind speeds increasing significantly during storms or seasonal weather changes; i.e occasional gusts can reach 10 to 20 m/s (36 to 72 km/h) during windstorms or cold fronts. Though local wind patterns are influenced by nearby buildings, and urban structures with wind somewhat get blocked or redirected by buildings.

* + 1. **Air Quality and noise (ambient air quality, sources of emissions nearby);**

The air quality and ambient noise levels around Kamuzu Central Hospital (KCH) in Lilongwe, Malawi, are influenced by both natural and human-made factors especially, traffic emissions, construction activities, and industrial emissions. The hospital is located in an urban area of Lilongwe, the capital city of Malawi, so it experiences both local and regional environmental influences.

While specific, real-time air quality data for Kamuzu Central Hospital may not be widely available, Air Quality Index (AQI) based on available data and global air quality standards, tends to fall within moderate ranges. On the other hand, noise levels around Kamuzu Central Hospital range between 60-80 dB(A) during the day, which is classified as moderate to high noise pollution. During the night, the noise levels reduce to around 50 dB(A)**.** High levels of noise can disrupt patients' recovery, disturb sleep, and increase stress levels. For healthcare facilities like KCH, reducing ambient noise is critical to improving the healing environment for patients, especially those in intensive care or post-surgery recovery. Strategies for improving air quality and noise control, during the rehabilitation works can help mitigate these issues and improve the environment around the hospital.

* + 1. **Natural Hazards: flooding, earthquakes and seismic activities**
  1. While Malawi is relatively free from major seismic activity and large-scale natural disasters, some natural hazards still affect the country and the location of KCH. Flooding along Lilongwe river and across the institution (localized flooding) is one of the more common natural hazards that can affect the area around Kamuzu Central Hospital. Several factors contribute to the risk of flooding include heavy rains occurring during the wet season, Poor and clogged drainage Infrastructure, inadequate drainage systems and topography with respect to varying elevations. Localized flooding increases the hospital vulnerability, as flooding may affect hospital operations by access issues (blocked roads), damage to infrastructure, and contamination of water supplies. Improved drainage infrastructure, including the installation of storm water management systems, can help alleviate flooding risks in the area. **Biological Environment of the Project Area**
     1. **Flora**

The proposed project site is at Kamuzu Central Hospital which is an already existing public facility with extensive hospital infrastructure. With this fact, the sites’ green spaces are mainly landscaped grounds. These areas are typically planted with a variety of ornamental trees, grasses and shrubs, to provide aesthetic value and a calming environment for patients, staff, and visitors including providing outdoor patient waiting areas and staff relaxation spots. Common tree species around the hospital include Jacaranda and Acacia trees. These trees offer shade, which is particularly important in the hot season, helping to cool the environment and provide comfortable outdoor spaces.

* + 1. **Fauna - Wild animals and Livestock**

The project site is an existing hospital area, and hence is not rich in fauna diversity due to the current land use. During the transect walk, no wild animals and livestock were spotted at the site. This implies that the project will not have significant negative impacts or disturbance of threatened wildlife and livestock.

* 1. **Social-Economic Environment of the Project Area.**
     1. **Population**

Kamuzu Central hospital is a 1000 bed tertiary referral hospital serving the whole central region of Malawi and catering to people with a wide range of social and economic backgrounds. As a tertiary referral hospital, it handles more than 300 000 patients annually, of which 45 000 are dealt with as in-patients. This translates to an average of 25,000 patients per month of which an average of 3,750 per month are in-patients. The hospital mostly handles new pandemics, critical, communicable and non-communicable illnesses to its central region catchment area which comprises of population of approximately 7-8 million people (of which 51.9% are females and 48.1 are males), the most populous of Malawi's three regions (i.e. Northern and Southern Regions).

* + 1. **Hospital Layout and Structure**

The hospital complex includes several buildings, each serving different functions such as outpatient services, inpatient wards, emergency services, surgery, maternity, and specialized care units. The buildings are typically low to mid-rise structures, designed with functional efficiency in mind. However, some parts of the hospital may show signs of aging infrastructure, which can impact the overall aesthetic and functionality, and hence the need for rehabilitation project

* + 1. **Hospital Facilities and Equipment**

KCH is equipped with a range of medical devices and machinery, including diagnostic tools like X-ray machines, CT scanners, and ultrasound equipment. However, due to resource constraints, some equipment may be outdated or in need of maintenance. The hospital includes essential support services such as laboratories, pharmacies, radiology departments, and a blood bank. These services are critical for the effective functioning of the hospital but can sometimes be strained by high patient volumes. There are also other services such as waste management systems, water supply and power supply that are critical to the hospital’s operations. The table below outline identified deficiencies that should be addressed by hospital management and MOH. The recommendations from this study have been provided.

Table 4.1: Operational observations during site visit

|  |  |  |
| --- | --- | --- |
| Issue identified | Current status | Recommendation during operations |
| Management of wastewater | The facility is connected to a sewerage system for the Lilongwe city now operated by Lilongwe Water Board. The system is expected to improve after the transfer. The facility generated approximately 11459 m3 of wastewater per month. | Conduct yearly comprehensive environmental audits of the facility to ensure they follow applicable environmental legislation  Assess compliance of their wastewater discharges with the applicable discharge.  Ensure that LWB’s capacity to handle Health care waste is maintained  Conduct quarterly training of hospital personnel on waste management at the facility  Ensure regular maintenance of the wastewater system of the facility. |
| Health Care waste Management | The hospital has a Health Care Waste Management plan (HCWMP).  There is a new incinerator which is used for managing health care waste.  The incinerator also has a tall chimney for ensuring that emissions are dispersed at high levels for effective dispersion.  Wheelie bins for storing wastes before they are incinerated are inadequate.  Waste segregation is inadequate.  Many healthcare workers do not know appropriate infection control and waste management procedures.  Lack of records for amounts of waste of various types generated, treated, discharged etc. | Conduct yearly comprehensive environmental audits of the facility to ensure that it is meeting solid waste management standard for a Health care facility  Ensure the incinerator is well serviced  Ensure color labeled waste bins are provided for segregation of wastes  Ensure waste storage areas are clean and tidy.  Conduct quarterly training of hospital personnel on waste management at the facility |
| Management of hazardous wastes | There is waste segregation of wastes at the hospital. Hazardous wastes are collected in |  |
| General waste Management | General waste such as food waste, paper, plastics, construction wastes and demolition wastes in different streams such as rubble, glasses, steel, wood etc. is generated. The hospital generates approximately 17,923 kg/month of general waste/ month  The waste is collected in bins around the facility and later disposed Lilongwe City Council waste disposal site at Area 38A.  During the site visit and consultations, it was observed that there is no closed waste storage area | Conduct yearly comprehensive environmental audits of the facility to ensure that it is meeting solid waste management standard for a Health care facility  The hospital administration to always provide enough bins with adequate liners.  The Hospital administration to ensure that waste storage area is properly enclosed. |
| Water supply | The hospital uses approximately 16,371 m3 of water per month from Lilongwe Water Board.  During the site visits it was observed that there were some small leakages in the water supply system.  The rehabilitation activities will use about 871 m3 of water.  The project during operations and maintenance will not increase water usage. | The project will during construction use water from Lilongwe river for the rehabilitation works.  During operation and maintenance, the hospital administration will conduct regular maintenance of the water supply system to reduced leakages and reduced problem of proper functioning toilets which will be maintained by the project. |
| Power supply | The hospital relies on ESCOM power. Approximately, the hospital uses 398,230 kwh of electricity / month. Due to power outages, there is a diesel operated generators at the site that uses approximately 18.72 m3 diesel per month.  During the visit no power saving technologies were identified | During operations and maintenance phase, installation of efficient and energy saver technologies that are recommended during rehabilitation phase should be maintained by the Hospital Administration. |
| Asbestos | Asbestos was identified in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ darkroom tile at the Kamuzu Central Hospital.  Other sections although not tested for asbestos are likely contain asbestos such as floor tiles. | An Asbestos Management plan Annex 8. Has been aprepared and will be followed during the rehabilitation works  The Hospital administration to conduct a full audit of asbestos and other banned substance in the hospital building, materials. These will be removed and managed following a similar plan as annex 8 if any section of the hospital is to be demolished, refurbished or rehabilitated |
| **Other observations:** | water intrusion and decay sections especially outside the main annex building which may harbor harmful bacteria or fungal spores. | The Hospital administration to conduct a full audit of the surrounding and take corrective action |

* + 1. **Water Supply**

The hospital has a water supply system in place, and by a utility company called Lilongwe Water Board (LWB), which supplies potable water to residents within Lilongwe City. The hospital uses approximately 16,371 m3 of water per month. Disruptions in water supply sometimes occur, impacting hygiene and sanitation. Water is essential for patient care, cleaning, and other hospital operations, and hence must be used with care. Noting this, construction activities happening at the hospital should use water from nearby Lilongwe River. The rehabilitation activities will use about 871 m3 of water.

Arrangements between contactor and the hospital should be in place to make sure that the contractor pays the bills for the water that may be used for cooking, drinking and other domestic uses. The contractor will also develop a Water Resources Management Plan.

* + 1. **Solid and Liquid waste management**

With respect to Waste, both solid and liquid waste are produced at the hospital and range from food waste, hospital waste and wastewater from sanitary facilities. For Hospital waste, KCH has a mechanical incinerator which handles all medical, hazardous and infectious waste. The incinerator has the ability to burn 300 – 500 kg waste/batch, 3 to 6 times a day. For other non-hazardous solid waste, KCH has protocols for waste disposal, including partnering with Lilongwe City Council to collect the waste and dispose it to designated places as there are challenges with adequate waste management infrastructure for all solid waste generated at the institution, of which can lead to occasional issues in maintaining optimal hygiene standards. For liquid waste especially from sanitary facilities, this is managed through the Lilongwe City Council sewer system, which through pipeline, all wastewater from the sanitary facilities is taken to their safe disposal place. The project should therefore make sure the construction waste generated due to project implementation are handled properly and within protocols of waste handling and management laid by the hospital and where necessary, consult Lilongwe City Council to provide services in waste handling a disposal e.g. broken glass.

* + 1. **Infection control**

Infection control measures are in place, including the use of personal protective equipment (PPE), hand sanitizing stations, and isolation areas for infectious diseases at the hospital. The effectiveness of these measures is crucial, especially in managing communicable diseases. The hospital management, staff and contractor including all relevant stakeholders should all adhere to the Infection control measures at the hospital, so that project implementation should not add potential infections to the hospital environment and/or the hospital environment get the contractor and workers infected during project implementation.

* + 1. **Transport Links**

The hospital is well connected by major roads e.g. Mzimba street, M1 road etc., making it accessible for construction materials and workers from within Lilongwe and from surrounding areas. Public transportation, including minibuses and taxis, is readily available.

* + 1. **Energy and Power Supply**

The hospital relies on the national grid for electricity by ESCOM. The hospital approximately uses 398,230 kwh/ month. The hospital also has a power backup which uses approximately 18.72 m3 diesel per month. However, since the proposed project is being implemented in an already existing structure, electricity needed will only be during operation and the demand may not increase due to the implementation of the project. However, resource efficiency measures for use of energy e.g. installation of efficient and energy saver technologies must be considered and implemented to enhance environmental performance of the project.

* + 1. **Safety and Security**

The hospital has safety protocols in place, including fire safety measures, emergency exits, and security personnel who make sure property from the hospital is not stolen. Also ensuring the safety of patients, staff, and visitors is a priority at the institution. The project can therefore utilize the security arrangements at the hospital and add security personnel if necessary to make sure theft of construction materials does not happen at the institution. Additional security personnel may be required due to the and overcrowding problems that the existing security personnel serve a large community already, as such any other additional already requiring security personnel may require a boost in security personnel.

* + 1. **Local governance within the project area.**

The area to which KCH is, is within Lilongwe City Council area of jurisdiction and in Lilongwe district. The district and City council structures especially DESC will have to take the role of monitoring the implementation of the project to ensure quality as this is among the assets of the council and that the city council will have to be engaged on waste management matters as it is their mandate for all areas within the city.

* + 1. **Commerce and Industry in the project area**

The commerce and industry sector activities are high near the project area such that the area is dominated by service and trade. Just immediately after the hospital premises, the trading activities include hawking, vegetable selling, retailing, butchery, food vending, etc. Such activities are carried out mainly at the mini market around the hospital. There are also active trading areas just within a Kilometer away from the hospital such that the proposed rehabilitation works will increase the scope of trade of this area by introducing more cashflows and customers of the goods and services sold around the site. The project’s contribution towards job creation, will contribute to the Government agenda of job creation in the district and the area.

# PUBLIC AND STAKEHOLDER CONSULTATIONS

* 1. **General**

Public and stakeholder consultations with relevant institutions and affected communities are important and critical for designing and implementation of environmental and social safeguards associated with development project like Rehabilitation of the selected sections of Kamuzu Central Hospital in Lilongwe District. The most important step is to carryout stakeholder consultations with relevant institutions, local communities, and all other interested/affected parties during planning and over the project implementation period during any environmental and social risk and impact assessment work that helps to identify key issues and to determine how the concerns of all parties will be addressed. As a principle, the guidelines for public consultation include, among others, a requirement of major elements of the consultation program should be timed to coincide with significant planning and decision-making activities in the project cycle.

During the preparation of this ESMP public consultations were conducted with Kamuzu Central Hospital officials and staff including project management officials at the hospital (which were considered the potentially affected people). The consultations however were not extended to patients and guardians in the targeted wards for ethical reasons. Additionally, consultations were held with Lilongwe District Environment Sub-committee (DESC) on 26th July 2024 and 16th August 2024 respectively to solicit their views and opinions that helped to identify potential positive and negative impacts associated with the project and suggesting suitable enhancement and mitigation measures respectively. In addition, public consultation process enabled the establishment and boosting of a communication channel between the local authorities, general public and the project proponents; and the concerns of the stakeholders to be known to the decision makers at an early phase of project development.

The issues covered during the consultations centered on the following key areas:

a) Challenges already existing in the area and the project can help address

b) Positive impacts anticipated from the project

c) How the positive impacts can be enhanced by the project

d) Risks anticipated if the project is implemented

e) Negative social impacts, construction and operation activities will cause and should be included in ESIA

f) If there are sensitive features existing in the area that the project may negatively affect

g) Activities that can likely threaten the environment to which the project will be implemented

h) Proposed interventions to be included in the ESMP to improve the environmental performance of the project

i) Labor issues- How best can this project ensure that more project workers are from the area.

j) Other issues that should be included in the ESMP

* 1. **Objectives**

Public and Stakeholder consultations were held with Kamuzu Central Hospital officials and District Environment Sub-committee (DESC) from Lilongwe District Council aimed to:

* Inform about and discuss the nature and scale of adverse impacts of the project on their livelihoods in a more transparent and direct manner and seek their participation in the project cycle.
* Give stakeholders a chance to have a say and express their views and concerns in the planning and implementation of the project that affects them directly or indirectly.
* Inform local authorities of the impacts, solicit their views on the project and discuss their share of the responsibility for the sound implementation and functioning of the overall project construction and operations activities.
  1. **Findings of public and Stakeholder consultations**

The findings of the Physical consultative meetings with Kamuzu Central Hospital Officials and Lilongwe District council DESC that was conducted on 26th July 2024 and 16th August 2024 are presented in form of summary of the main issues that came out and are provided in Table 5-1. The table also summarizes how the issues have been incorporated into this ESMP. Appendix 2 shows the list of members that were consulted

Table 5-1: Summary of issues discussed, and comments raised by stakeholders and how was addressed

| **Stakeholder** | **Meeting Place** | **Date of Meeting** | **Objective of the meeting** | **Issues discussed** | **Inputs/ Comments made** | **How the issue was/has been addressed** |
| --- | --- | --- | --- | --- | --- | --- |
| Representatives of Hospital management | Kamuzu Central Hospital premises | 26th July,2024  2:30-3:30pm | To solicit input from the Hospital management about the benefits and negative impacts the project may bring and how to mitigate negative impacts. | Nature/ components of the project | The Many sections of the hospital are dilapidated in its state with worn outdoors and windows, broken sanitary facilities etc. The project will help to address some of the problems the facility is facing. | This has been consolidated into a positive impacts of Improved aesthetic appearance of the infrastructure and increased sanitation situation of the hospital during operation |
| Environmental benefits the project will bring and enhancement measures | The project will improve the outlook of the selected sections which have been earmarked for rehabilitation and hence retaining its original beauty | This has been consolidated as positive impacts of Improved aesthetic appearance of the infrastructure during operation |
| The replacement of broken sanitary fittings will help improve the sanitation situation of the hospital | This has been consolidated into positive impact of Improved sanitation services at the institution during operation |
| Socio-economic negative impacts the project will bring | The rehabilitation works will result to temporary closure of services and/or displacement of patients and other hospital services offered in the targeted sections. | This has been included as negative social impacts during construction/ rehabilitation works namely Temporary disruption of services offered at the facility and Hospital services and Patients displacement. Mitigation measures have been provided for the impacts |
| Public safety risk may be compromised especially due to construction vehicles not observing speed limits within hospital premises and if the areas of works are easily accessible | This has been consolidated into negative impact of public safety and health risk during rehabilitation. Mitigation measures have been provided. |
| Environmental negative impacts the project will bring | The works may lead to noise, generation of solid waste, and dust | These have been identified negative environmental impacts during rehabilitation/ construction works. Mitigation measures have been provided for the impacts |
| Other considerations to be made in the project | The project should also consider financing rehabilitation of the other sections which are equally in dilapidated state at the hospital to enhance service delivery.  Procurement of Lightning arrestor, fire alarm and fire extinguisher may go a long way to ensure safety of the machinery and the rehabilitated building | The safety measures have been included as among the Mitigation measures for the impact of Increased risk of fire outbreaks at operation |
|  | | | | | | |
| Lilongwe DESC members | Lilongwe District Council Water Office Board room | 16th August, 2024 | To brief the DESC members about the project and to solicit their inputs on the different impacts and how the impacts can be managed | Nature/ components of the project | The rehabilitation of KCH will address the problems the hospital is facing, improve the hospitals outlook and contribute to Infection Prevention Control especially by adding functional toilets. | This has been consolidated into a positive impacts of Improved aesthetic appearance of the infrastructure during operation and increased sanitation situation of the hospital |
| Socio-economic benefits the project will bring | The project will create job opportunities to the surrounding communities | This has been included as a positive impact of creation of temporary jobs during the rehabilitation works |
| Business opportunities may increase due to increased new customers, who are construction workers | This has been included as a positive impact during the rehabilitation works |
| Upon employing members from nearby communities, they will tap skills from the experienced contractors and being able to take those skills to their communities even after the project | This has been consolidated into the impact of transfer of skills during rehabilitation stage |
| Environmental benefits the project will bring | The project will improve the outlook of the hospital | This has been consolidated into a positive impacts of Improved aesthetic appearance of the infrastructure during operation |
| The replacement of sanitary facilities will improve safety and health of patients and guardians and result in increasing infection prevention and control | This issue was consolidated as positive impact during operation |
| Socio-economic negative impacts the project will bring | The rehabilitation works may bring occupational safety risks to workers especially working on heights and working with toxic chemicals like paints | This has been included as a negative impact of Physical and chemical occupational health and safety risks during the rehabilitation works |
| Patients and services may be displaced during the rehabilitation works | This has been indicated as a negative impact during rehabilitation works |
| The implementation of the project may lead to public safety concerns especially since it is a busy hospital setting. So, construction vehicles must be regulated | The issues have been consolidated into negative impacts of increased public health and safety impacts and mitigation measures have been suggested |
| Issues of child labour, sexual harassment, GBV and child marriages and increased defilement cases may emerge | These have been included as negative social impacts during the rehabilitation works |
| The implementation of the project may block passages to other departments | This has been consolidated as an impact during the rehabilitation works |
| Environmental negative impacts the project will bring | Dust emissions may emerge due to usage of cement and other dusty construction materials | Impact of increased dust emissions has been included as a negative impact during the rehabilitation works |
| Increased exposure of UV light to people if the installation of safety measures is not appropriately installed by competent contractors | This has been consolidated into the impact of Increased risk of leakage radiation or stray radiation during operation |
| Being a hospital, and that will involve the areas where patients are admitted, issue of noise from construction works is of concern | The issue of noise has been included as a negative impact during the rehabilitation works |
| Solid waste may be generated due to construction waste and food waste from the workers | This has been included as a negative impact during rehabilitation works |
| With preliminary detection of ACMs in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ dark room tile at KCH and since rehabilitation is of old buildings and will target some of these sections, the rehabilitation workers may lead to further finding provoking release of asbestos containing materials. | This has been consolidated as a negative impact during rehabilitation stage and plan for handling asbestos containing materials has been provided as appendix 8 |
| Other considerations to be made in the project | Signage should be prioritized as a communication strategy during project implementation | This has been included as a mitigation measure for some of the impacts |
| GRM is needed for workers and the institution and workers should have code of conduct to avoid impacts of sexual exploitation, GBV and child marriage | Worker’s code of conduct has been attached to this ESMP and GRM structure for the project has been recommended |
| Funds permitting the project should extend the rehabilitation works to all sections currently in dilapidated state. | The hospital is equipped with elevators which are considered disability friendly structures. However, their operation is intermittent, and this leads to most times guardians carrying patients including the disabled through the steps. The maintenance of the faulty elevators during rehabilitation are proposed as they are disability friendly structures and therefore has been consolidated as a mitigation measure under impact of increased vulnerabilities for People with disabilities and patients at operation |
|  |  |  |  |  | The brick wall demarcations of the makeshift wards will reduce ventilation of the new smaller wards due to that the original front windows sizes are smaller than the size of the to be created new ward | This has been consolidated into an impact during operation. |

# ENVIRONMENTAL AND SOCIAL IMPACT IDENTIFICATION AND ANALYSIS

* 1. **Overview**

The proposed rehabilitation works for selected sections at Kamuzu Central Hospital will have both positive and negative environmental and social impacts that may lead to a variety of changes in the nearby biophysical and socio-economic environment. Through site visits and risk screening exercise in consultation with Government officials (see screening form in Appendix 1(a), consultations with key stakeholders and other affected and interested parties as well as expert knowledge, the anticipated impacts were identified and a summary of the potential beneficial as well as adverse impacts that may emanate from the implementation of the proposed project and the respective mitigation and enhancement measures are discussed under this section. This Environmental and Social Management Plan (ESMP) is intended to ensure the significant negative impacts are minimized as much as possible while maximizing the positive benefits of the project. It also assists the proponent to manage the anticipated adverse environmental and social impacts associated with the project throughout the project implementation period.

* 1. **Description of Potential impacts and their mitigation/ enhancement measures**

In line with the objectives of the project, potential positive impacts derived from the project will be generated. Similarly, negative impacts will be generated. The impacts and their respective mitigation/ enhancement measures are as follows:

* + 1. **Positive Impacts**

* + - 1. **Planning / pre-construction stage**
  1. **Impact:** Creation of temporary jobs

**Cause and comment**: During the planning and design phase, the project is recruiting professionals such as ESIA consultants and designers etc. These are benefiting from providing their consultancy services to the project.

**Enhancement measure(s**):

* 1. Give priority to local Malawians, when recruiting people for the various project activities. Only when required skills are not locally available can the project consider importing human labour.
  2. Give equal opportunities for employment to both males and females.
     + 1. **Construction/ Rehabilitation stage**
     1. **Impact:** Creation of temporary jobs

**Cause and comment:** During rehabilitation works, the proposed project will recruit about 50 skilled and unskilled men and women. The impact is positive and highly beneficial considering the high levels of unemployment in the country. The impact will occur throughout the construction period.

**Enhancement measures**

* 1. Give priority to nearby local communities for both skilled and unskilled workers' employment, with imported labour only be initiated when the needed skills are not locally available,
  2. Pay good wages/ salaries commensurate with Government rules and regulations.
  3. Give equal opportunities for employment to both males and females.
     1. **Impact:** Increased business opportunities

**Cause and Comment:** The potential impact is positive and socio- economic in nature. The impact is likely to be caused by increased economic activities e.g. small and medium enterprises around the project area in response to the demand for various goods such as food items, created by people working on the project site. People from local communities are likely to engage in small-scale businesses selling the demanded items and commodities.

**Enhancement measure:**

* 1. Increase space on the existing market to accommodate new entrants
     1. **Impact:** Increased skills transfer to local people

**Cause and Comment:** The potential impact is positive and socio- economic in nature. The impact is likely to be caused by the fact that some skilled workers engaged during construction may be migrant workers. As both the local and migrant workers are doing their job, there will likely be transfer of skills and expertise amongst them. Local workers will likely benefit from skills from migrant workers.

**Enhancement measure:**

* 1. Employ other skilled workers from the surrounding local communities.
     + 1. **Operations and maintenance Phase**
       2. **Impact:** Improved aesthetic appearance of the infrastructure

**Cause and comment**: It is anticipated that after completion of rehabilitation works, the final structure will be an improved version of the current and will be beautiful. This anticipated beautiful infrastructure will complement or improve the outlook of the institution.

**Enhancement measures:**

* 1. Implement activities as planned with experienced contractors.
  2. Maintain the infrastructure regularly for quality sustenance
  3. **Impact:** Improved sanitation services at the institution

**Cause and comment**: It is anticipated that rehabilitation works including the installation of new sanitary fittings, the sanitation situation of the targeted buildings and spaces will improve.

**Enhancement measures:**

* 1. Install durable sanitary fittings to sustain the benefits of improved sanitation.
  2. Establish regular maintenance schedules for all sanitation facilities to prevent breakdowns and ensure continuous operation.
  3. **Impact:** Increased space for X-ray services leading to improved service delivery

**Cause and Comment:** The proposed rehabilitation will involve extending the size of the room to which CT scan and other X ray machines are housed through opening of other walls and combining the rooms to make one larger room for the services and hence accommodating more people at a time.

**Enhancement measure:**

* 1. Rehabilitate the radiology room with input from the hospital authorities to incorporate their needs into the design
  2. Install appropriate shielding materials as per regulatory standards from the Atomic Energy Regulatory Authority (AERA).
  3. Conduct a comprehensive structural assessment of the existing building before beginning opening walls and construction.
  4. Develop detailed blueprints and construction plans that account for the building's structural integrity.
  5. Plan the rehabilitation work in phases to manage and control the structural impacts
  6. Implement permanent reinforcement measures where necessary, to maintain structural integrity.
  7. Ensure the presence of qualified construction engineers and/or supervisors during the works.

1. **Impact:** Improved infection prevention and control at the facility

**Cause and comment:** The replacement of sanitary facilities will reduce health and safety risk as means of increased infection prevention and control from using poor and unhygienic sanitary facilities at the hospital.

Enhancement measures

1. Replace broken fixtures with more durable, easy-to-clean options.
2. Establish regular maintenance schedules for all sanitation facilities to prevent breakdowns and ensure continuous operation.
3. Provide training to staff members, construction workers on infection control policies and procedures.
   * 1. **Negative Impacts**
        1. **Planning / pre-construction stage**
     2. **Impact: Poor Stakeholder Engagement**

**Cause and Comment:** Without a comprehensive audit, the hospital may not properly engage with patients, guardians or staff regarding the upcoming rehabilitation, which could lead to misunderstandings, complaints, or even protests during implementation.

Mitigation measures:

1. Conduct regular training for staff on the EHS practices to be implemented during construction phase.
2. Appoint an EHS officer responsible for conducting routine checks and generating reports to ensure compliance with environmental and safety regulations during project implementation.
3. Engage with the patients/ guardians and stakeholders on upcoming rehabilitation works to ensure transparency and foster good relationships regarding the project
   * + 1. **Construction/ rehabilitation stage**
4. **Impact:** Temporary disruption of Hospital services and Patients displacement

**Cause and comment:** During the rehabilitation works, the services that are offered at the radiology facility and the Main Annex building may be disrupted. Rehabilitation of radiology room and the patients wards in the Main Annex Building can disrupt other hospital operations and patients respectively, causing inconvenience to patients and staff.

**Mitigation measures:**

* 1. Implement the Hospital Services and Patients Displacement mitigation Plan (appendix 9) and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP.
  2. Involve hospital staff, administrators, and patients in the planning process to understand their needs and concerns.
  3. Redirect services to other parts of the facility to ensure continuity of critical operations.
  4. Move patients to nearby hospitals to access radiology and other services that need specialized rooms, accompanied by hospital radiographer
  5. Undertake rehabilitation in a phased manner so that patients and guardians have access to critical services always including toilets.
  6. Provide regular updates to all stakeholders about the project’s progress and any potential impacts on services.
  7. Utilize alternative or Unused Spaces where available or underutilized spaces within the hospital to temporarily accommodate displaced services and patients.
  8. Prioritize critical services and ensure they remain operational even during rehabilitation phase.
  9. Plan for staggered displacement of services to avoid overwhelming any single area or department.
  10. Communicate through information campaigns to keep patients, staff, and visitors informed about the project and any changes to services.
  11. Use clear signage within the hospital to direct patients to temporary locations of services.
  12. Implement the works according to scheduled time to enable resumption of service delivery in shortest time as possible

1. **Impact:** Blockage of passages through the Radiology to other departments, offices and near the section being rehabilitated

**Cause and comment**: Prior to commencing rehabilitation works, the perimeter of the site will be fenced to restrict access. In fencing the perimeter of the site, other passages used by staff and patients to access other departments at the hospital, may be blocked.

**Mitigation measure(s):**

* 1. Relocate all affected passages before commencement of rehabilitation works.
  2. Sensitize staff and patients on newly designated passages.
  3. Install temporary ramps for wheelchair people in new redirected passages/ spaces
  4. Use clear signage within the hospital to direct staff and patients.

1. **Impact:** Increased generation of solid waste

**Cause and comment**: The rehabilitation works will generate considerable amount of solid waste which may include construction materials packaging, paint cans and food wastes from workers.

**Mitigation Measures:**

1. Develop and implement a waste management plan by construction contractor as part of C-ESMP that includes segregation, recycling, and proper disposal of construction waste.
2. Undertake regular assessment of waste generation quantities and categories to facilitate waste management planning and investigate opportunities for waste minimization on a continuous basis.
3. Prohibit littering inside offices and around the hospital facility.
4. Train workers and staff on proper waste segregation procedures, ensuring everyone understands the risks and responsibilities.
5. Provide adequate clearly labeled bins on-site for different types of waste.
6. Set up secure, well-contained waste storage areas to prevent littering, contamination, and exposure to weather.
7. Promote recycling and reusing of wastes where possible.
8. Dispose solid waste at designated waste disposal areas in the city (Area 38 dumpsite).
9. **Impact:** Increased air emissions due to emissions from vehicles and dust

**Cause and comment**: Floor rehabilitation works as well as delivery and offloading of construction materials e.g. bricks and cement may release dust and affect those in the surrounding spaces including patients.

**Mitigation Measures:**

1. Suppress dust regularly using water and regular cleaning of all surfaces with dust accumulations to minimize the spread of dust
2. Provide appropriate PPE to workers such as dust masks for those working in dusty conditions.
3. Use closed/covered trucks for transportation of construction materials.
4. Offload and store construction materials in spaces away from patients and only bring sizeable amounts to the locations of works to avoid dust emissions.
5. Ensure that all vehicles and construction equipment are regularly serviced and maintained to keep them running efficiently, reducing the likelihood of excess emissions.
6. Plan the construction site layout and the routes for delivery vehicles to minimize the distance traveled, thus reducing emissions.
7. Coordinate delivery and unloading schedules to avoid unnecessary idling and minimize the amount of time vehicles spend on-site.

Train construction workers on the techniques available to minimize emissions, such as proper equipment maintenance and efficient work practices.

1. **Impact:** Increased noise pollution

**Cause and comment**: other rehabilitation works such as existing floors, windows and doors demolitions and replacements, construction vehicles and equipment as well as construction workers may increase ambient noise levels of the hospital and cause noise nuisance to the patients

**Mitigation Measures**

1. Implement the Hospital Services and Patients Displacement mitigation Plan (appendix 9) and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP.
2. Fence the construction site
3. Use equipment with noise silencers
4. Use well maintained equipment and vehicles
5. Limit works to daytime to avoid disturbing patients at night.
6. Sensitize workers to keep voices down.
7. Avoid unnecessary movement of construction vehicles at the facility.
8. Sensitize community/patients and guardians on time of noisy activities
9. **Impact:** Increased generation and management of hazardous wastes.

**Cause and Comment:** Rehabilitation works will utilize materials such paints glasses, and petroleum wastes etc. This can result in generation of hazardous wastes such as paints cans and remains, broken glasses etc. and/or creating hazardous environment.

**Mitigation measures:**

1. Develop and implement waste management plan that includes hazardous waste
2. Substitute hazardous construction materials with nonhazardous alternatives i.e. lead paints.
3. Segregate scrap metals and glass from other waste streams to ensure safe handling.
4. Line surfaces where cement, paints and oils will be stored.
5. Line the floor during painting and use of lubricants.
6. Remove contaminated soil or spills immediately they are contaminated so that run-off do not wash the spills to the water bodies.
7. Servicing of machinery to be done in designated lined areas .
8. Secure storage and label all storage areas for hazardous wastes to minimize the risk of accidents, spills, or contamination.
9. Store hazardous waste at designated locations before final disposal at appropriate agreed sites with local authorities.
10. Dispose hazardous waste at designated places and by a competent authority.
11. **Impact:** Increased risk of child labour

**Cause and Comment:** Contractor may employ children (less than 18 years) workers to cut costs. Children may also be employed to sell merchandise at the facility targeting the construction workers.

**Mitigation Measures:**

* 1. Employ only those aged 18 years and above as workers by checking their IDs.
  2. Sensitize surrounding communities on child labour

1. **Impact:** Occupational safety and health risks

**Cause and comment:** Human error in the use of equipment, lack of safety measures e.g. Personal Protective Equipment and information during works, nature of work e.g. working on height, holes, trenches and plumbing may expose workers to accidents or compromise safety of the workers. Strict measures to occupational health and safety risks must be put in place and implemented to avoid accidents and occupational health related problems.

**Mitigation measures:**

1. Develop and implement Health and Safety Plans
2. Conduct risk assessment before commencing any works
3. Conduct regular safety inspections to ensure maximum safety of workers.
4. Enforce strict safety protocols and reporting mechanisms.
5. Train all workers on proper use and handling of equipment.
6. Always provide all workers with appropriate PPE and effective use of such.
7. Install signage in all critical areas and indicating “Danger equipment”, slow down “Stop” etc.
8. Provide First Aid Kit and Firefighting equipment.
9. Train some workers in first aid.
10. Provide safe working on height equipment e.g. scaffolds.
11. Conduct regular safety Toolbox talks
12. Use of competent workers for specialized works
13. Use well-guarded equipment
14. Ensure Good housekeeping practices to make work environments safe
15. **Impact:** Risk of chemical exposure to workers

**Cause and Comment**: Inhalation of dust and fumes from e.g. cement and paints during execution of rehabilitation works can lead to respiratory issues and diseases. Again, direct skin contact with hazardous chemicals like solvents, cement, and adhesives can cause skin irritation and chemical burns. Accidental ingestion of chemicals can also occur through contaminated food or hands, leading to poisoning and other serious health effects.

**Mitigation measures**

1. Replace hazardous chemicals such as paints and sealants or non-toxic alternatives where possible.
2. Provide regular training on the proper handling, storage, and disposal of hazardous chemicals.
3. Develop and enforce safe work practices, such as proper labeling of chemicals and implementing emergency procedures.
4. Store hazardous chemicals in labeled, secure containers and in designated storage areas to prevent accidental exposure and spills.
5. Provide suitable PPE such as gloves, respirators, protective clothing, and eye protection to workers handling hazardous chemicals.
6. Ensure the availability of first aid kits and trained personnel to provide immediate medical assistance in case of chemical exposure incidents.
7. Follow proper disposal procedures for hazardous chemicals to prevent environmental contamination and worker exposure.
8. Dispose hazardous chemicals in consultation with LCC and MEPA.
9. **Impact:** Increased Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) including defilement

**Cause and comment:** The increased population due to workers at the hospital premises may increase indulgence of crimes such as raping, defilement, physical assault, sexual harassment, discrimination and use of provocative language etc. amongst workers and people at the hospital.

**Mitigation Measures:**

1. Develop and implement GBV/SEA prevention plan
2. Sensitize workers and hospital community on GBV/SEA and harassment.
3. Conduct thorough background checks on all workers and ensure that those with a history of sexual offenses are not employed on the project.
4. Strengthen grievance redress mechanisms including reporting mechanisms for GBV/SEA and harassment.
5. Ensure workers sign and adhere to code of conduct that prohibits GBV/SEA
6. Put in a place a GRM committees having GBV/SEA champions
7. Map out and make available referral and support systems for GBV/SEA survivors
8. **Impact:** Increased cases of theft

**Cause and Comment:** There can be an increased theft cases of building materials especially where wage payments are delayed by contractors.

**Mitigation Measures**:

* 1. Sensitize workers on dangers and consequences of theft.
  2. Ensure workers sign and adhere to a code of conduct
  3. Extend existing Institutional security service to cover project site.

1. **Impact:** Potential increase of water bills

**Cause and Comment:** Rehabilitation works will increase demand for water which is shared at the hospital facility and hence resulting to increasing the bill for the water.

**Mitigation Measures:**

* 1. Develop and implement Water Resources Management Plan
  2. Use water from Lilongwe River for construction purposes
  3. Agree on payment arrangements for water bills by the hospital and contractor
  4. Engage in other water management options during Rehabilitation works to conserve water resources.

1. **Impact:** Risk of spread of HIV and AIDS and other communicable diseases

**Cause and Comment:** HIV and AIDS and STIs will likely increase due to increased numbers of migrant workers to the project site, living away from their families for extended periods. This mobility can disrupt stable relationships and increase the likelihood of engaging in risky sexual behaviours upon increased social interaction with other workers and communities.

**Mitigation measures**:

* 1. Develop and implement HIV and AIDS Workplace Policy.
  2. Sensitize workers on HIV and AIDS and STIs and other communicable diseases, including how it is transmitted, prevention methods, and the importance of getting tested.
  3. Provide and train workers on condoms use.
  4. Allow infected workers to access Anti-Retroviral Treatment (ART) from any health facilities of their choice; and
  5. Employ workers from the surrounding sub-project site to minimize promiscuity.

1. **Impact:** Risk of spread of COVID-19

**Cause and Comment:** Increased number of people at the project site as workers’ including contact of those with the infected if not taking appropriate preventive measures may increase risk of contracting COVID-19.

**Mitigation Measures:**

1. Conduct sensitizations COVID-19 symptoms and prevention to workers.
2. Provide equipment to enhance hygiene i.e. water for washing hands, soap and sanitizers to be always made available at the work premises
3. Adhere to Covid-19 measures as specified by Government at that time.
4. Make protective face masks available at the workplace for those potentially ill can wear to avoid spreading Covid-19.
5. **Impact:** Increased risk of Child marriages

**Cause and Comment:** The presence of construction workers may increase the risk of child marriages as families might see it to gain financial benefits or security during economically stressful times. This impact can worsen if local communities see marriage as a protective measure against perceived threats from outsiders and if the construction workers are mostly migrant workers.

**Mitigation measures**

* 1. Conduct community awareness campaigns to educate families and workers about the negative impacts of child marriage and the benefits of keeping girls in school.
  2. Prioritize local community members in employment for KCH rehabilitation project to enhance economic stability and reduce the perceived need for child marriage.
  3. Facilitate signing of code of conduct by all workers before engagement as a worker with No to child marriage being among the requirements
  4. Sensitize on GRM and respective reporting mechanisms for individuals to report any suspected cases of child marriage.

1. **Impact:** Increased risk to public health and safetyincluding traffic accidents

**Cause and Comment**: Lack of awareness of the site with rehabilitation activities happening would make the site dangerous to patients who might walk across the site especially at night. Also being a hospital which is a busy environment, vehicles carrying construction materials may threaten safety of the staff and patients at the hospital. Additionally, toxic, allergenic, VOC emitting paints and sealants may also pose a risk to patients and public.

**Mitigation Measures:**

1. Identify and designate specific routes for construction vehicles to minimize their movement through the hospital premises and residential areas.
2. Install speed bumps or rumble strips to slow down traffic within the hospital, residential or school zones.
3. Sensitize hospital community of the works and how to stay safe.
4. Fence the construction site to limit access.
5. Put safety tape around all potentially dangerous spaces.
6. Install signage to limit access to construction site.
7. Limit construction vehicle speeds to 20km/hour within the hospital premises to avoid accidents.
8. Use nontoxic, non-allergenic, and do not include volatile organic compound (VOC)-emitting paints and sealants.
9. **Impact:** Increased risk of asbestos exposure to workers and the public

**Cause and Comment:** ACMs were detected in Wards 4A and 4B wall panels as well as Radiology Department floor tiles (which are among sections to undergo rehabilitation), disturbance of these old walls and floors is inevitable. Furthermore, despite no preliminary findings that other sections targeted for rehabilitation at KCH does not have presence of asbestos-containing materials, actual works might typically lead to finding more asbestos fibers and its potential release into the environment. Inhalation of these fibers can cause severe respiratory diseases, including asbestosis, lung cancer, and mesothelioma, which can take decades to manifest after exposure. Construction workers, building occupants, and nearby residents are at risk of inhaling airborne asbestos fibers if found and provoked during and after the rehabilitation process.

**Mitigation measures:**

* 1. Implement the Asbestos Management Plan (appendix 8)
  2. Undertaking an asbestos audit prior to/at the beginning of the rehabilitation of each section.
  3. Train workers in Asbestos containing materials identification and handling
  4. Provide appropriate PPE to workers and always ensure use
  5. Dispose ACM in consultation with MEPA and LCC

1. **Impact:** Spread of water borne diseases e.g. Malaria, diarrhea

**Cause and Comment:** During a hospital or infrastructure rehabilitation project, poor management of wastewater and sanitation can lead to the spread of waterborne diseases such as malaria and diarrhea. This is in addition to using polluted water for drinking and cooking by workers.

**Mitigation measures**

1. Ensure all water containers (e.g., buckets, tanks) are covered or turned upside down to prevent mosquito breeding.
2. Regularly inspect the construction site for any areas where water is accumulating and drain or treat these areas.
3. Set up handwashing stations with soap and clean water at the construction site, ensuring workers practice good hygiene.
4. Install sufficient, well-maintained portable toilets or sanitation units for construction workers, ensuring they are cleaned regularly to prevent contamination.
5. Use tap water for cooking and drinking by workers.
6. **Impact:** Increased risks of fire outbreaks/explosions

**Cause and Comment:** At construction phase, fire outbreaks can be caused by demolition works where there are electric cables, open fires for cooking by contractors, smoking and friction of equipment etc.

**Mitigation measures**

* 1. Raise awareness among workers on fire safety.
  2. Prohibit open fires on the construction site.
  3. Install safety measures such as lightning arrestors, fire alarm etc. to enhance safety of the hospital building
  4. Equip all rehabilitated sections of the hospital with fire extinguishers and water hydrants
  5. Install signage for all fire exit points and sensitize all occupants of the building(s) on where those exit points are
  6. Identify fire assembly points and train workers and occupants of the building on how to escape in case of fire outbreak

1. **Impact:** Increased risks of works disruptions and storage area flooding due to occurrence of natural hazards e.g. storms during construction

**Cause and Comment:** With the occurrence of natural hazards, particularly storms and heavy rainfall, during the construction phase of a project, may have disruptive consequence e**specially if the** intense rainfall can overwhelm drainage systems, leading to localized flooding in the construction area, including material storage sites. The situation can make construction sites inaccessible due to water accumulation and cause and supply chain disruptions. This situation can worsen if the storage areas are unprotected.

**Mitigation measures**

1. Regularly monitor weather forecasts and storm warnings to anticipate adverse weather conditions.
2. Use weather tracking systems to provide real-time updates to construction teams to
3. **Elevate Storage Areas** above potential flood levels, ensuring that materials and equipment are not in direct contact with the ground.
4. Employ waterproof covers, or enclosures to protect sensitive materials and tools.
5. Regularly inspect and maintain drainage infrastructure to ensure it remains functional during heavy rainfall.
6. Plan for potential weather-related disruptions by building flexibility into the project timeline, to allow for rescheduling work around storm events.
7. Develop and implement emergency response plans as part of C-ESMP in case of storm-related incidents, including flood evacuation procedures and protocols for securing equipment and materials.
   * + 1. **Operation and Maintenance stage**
       2. **Impact:** Poor solid waste management due to increased inefficiencies during operation

There may be poor management of solid waste due to increased inefficiencies during the project operation stage as deficiencies were already identified on the operations of the hospital during the development of this ESMP. During operations hospital administration should pay attention to operations of the incinerator, waste segregation and storage areas and records.

Mitigation measures

1. Conduct yearly comprehensive environmental audits of the facility to ensure that it is meeting solid waste management standard for a Health care facility
2. Ensure the incinerator is well serviced
3. Ensure color coded waste bins are provided for segregation of wastes
4. Ensure waste storage areas are enclosed, clean and tidy.
5. Conduct quarterly training of hospital personnel on waste management at the facility
   * 1. Poor liquid waste management

**Cause and comment:** during operation and maintenance phase, the hospital is connected to LWB sewer line that if not properly managed may result to pollution of water resources in the Lilongwe River where final discharge of treated effluent is done.

**Mitigation Measures**

1. Conduct yearly comprehensive environmental audits of the facility to ensure they follow applicable environmental legislation
2. Assess compliance of the wastewater discharges with the applicable discharge standards.
3. Ascertain that LWB’s capacity to handle Health care waste is maintained
4. Conduct quarterly training of hospital personnel on waste management at the facility
5. Ensure regular maintenance of the wastewater system of the facility.
   * 1. Air pollution and operational risks from incineration of wastes

**Cause and Comment**: during operation and maintenance phase, poor management and inadequate maintenance of the incinerator may result to incomplete combustion of the wastes. This may result in the pollution of air.

**Mitigation Measures**

1. Sort the waste to ensure only combustible waste goes into incinerators.
2. Train staff on how to operate the incinerators.
3. Plant trees around in the hospital area to help absorb emissions.
4. Regularly maintain the incinerator; and
5. Orienting staff to the Infection Control and Waste Management (ICWM) practices.
   1. Increased risk of infections due to poor management of health care wastes

**Cause and comment:** during operation and maintenance phase, poor management of health care wastes may expose health workers and the public to various types of infections. Infection prevention and control during operation phase will therefore be important.

**Mitigation Measures**

1. The MoH and KCH must continue to train and sensitize its staff in infection control and best practices for managing infectious wastes.
2. Regularly monitor performance of equipment such as incinerator and carry out maintenance.
3. Ensure there is enough supply of PPE for infections prevention and control for health care workers.

5.  **Impact:** Increased risk of leakage radiation or stray radiation

**Cause and Comment:** Improper rehabilitation of radiology section may result in radiation leakage, posing health risks to patients, staff, and the public during operational and maintenance phase.

**Mitigation measures:**

1. Ensure proper shielding with lead-lined walls, doors, and windows. Follow regulatory guidelines for radiation protection in construction materials and methods.
2. Use experienced and qualified contractors who adhere to best practices in construction safety and environmental management.
3. Regularly monitor and inspect construction activities to ensure compliance with safety and environmental standards
4. Ensure regular maintenance of the facility
   1. **Impact:** Reduced ventilation in the demarcated wards

**Cause and Comment**: The project will involve constructing brick wall demarcations on makeshift wards to meet standards of hospital wards specified by Medical Council of Malawi. This will result to individual demarcated wards having front and back section. The front section will have ventilation reduced due to that the original windows are smaller compared to the combined size of the new ward. If not addressed this may as well be in contradiction with the IFC/ World Bank EHS guidelines for health care facilities which have singled out issue of ventilation as among key issues to be considered in the design.

**Mitigation measure**

1. Increase the size of the windows of front section of the demarcated ward to allow air circulation into the new wards.
   1. **. Impact:** Increased risks of fire outbreaks/explosions

**Cause and Comment:** fire incidences are a risk which must be prepared for as it is caused by both natural and manmade activities e.g. lightning, faulty electrical wires and appliances etc. At operation fire outbreaks can cause extensive damage to the newly rehabilitated building structure, equipment, and leading to significant financial losses. Fires may also pose a direct risk to the safety of occupants, with potential for serious injuries or fatalities and in critical facilities like hospitals, fire outbreak can lead to operational shutdowns, disrupting services and potentially affecting vulnerable populations.

**Mitigation measures**

* + Raise awareness among workers on fire safety.
  + Install safety measures such as lightning arrestors, fire alarm etc. to enhance safety of the hospital building
  + Equip all rehabilitated sections of the hospital with fire extinguishers and water hydrants
  + Install signage for all fire exit points and sensitize all occupants of the building(s) on where those exit points are
  + Identify fire assembly points and train workers and occupants of the building on how to escape in case of fire outbreak
  1. **. Impact:** Increased vulnerabilities amongst the persons living with physical disabilities and patients in accessing the rehabilitated facilities

**Cause and comment:** Access into the rehabilitated facilities e.g. wards may be challenging to persons living with physical disabilities and critically ill patients if the elevator structures which the hospital already has as faulty and/or not in working condition.

**Mitigation measure(s)**

Maintain faulty elevators during rehabilitation works.

* 1. Potential increase in energy and water use

**Cause and Comment:** During operation and maintenance phase bills for electricity and water may increase due to poor maintenance and management of the water supply system and electricity within the hospital.

**Mitigation measures**

* + Employ power saving technologies such as energy saver bulbs
  + Switch of bulbs and appliances when not in use
  + Implement water-saving technologies such as low-flow faucets, toilets, and showerheads in sanitary rooms.
  + Implement leak detection and repair programs to promptly address any water leaks in infrastructure or equipment.
  + Encourage water and energy conservation practices among workers through sensitizations.
  1. **Significance Ranking of the Impacts**

After identification of environmental and social impacts was carried out, the second step was to evaluate/ rank the significance of the impacts. The impacts were evaluated using the parameters of magnitude, significance, probability and duration of occurrence. The evaluation of the identified impacts was guided by careful assessment and judgment of the anticipated consequences about normal standards and was done by means of an Impact scoring matrix criterion as shown in Table 6.1.

The primary goal of implementing this methodology was to identify potential environmental issues and associated impacts from the proposed project and to assign a significance ranking to them. Issues or aspects were reviewed and evaluated against this significance criteria to identify and document interactions between activities and aspects, as well as resources and receptors, providing a detailed discussion of impacts. The impact significance analysis and their respective significance rankings is presented in Table 6-2 and 6-3 for positive and negative impacts respectively.

Table 6-1: Significance Ranking Criteria

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CRITERIA** | **SCORE 1** | **SCORE 2** | **SCORE 3** | **SCORE 4** | **SCORE 5** |
| **Impact Magnitude (M)**  The degree of alteration of the affected environmental receptor | Very low:  No impact on processes | Low:  Slight impact on processes | Medium:  Processes continue but in a modified way | High:  Processes temporarily cease | Very High:  Permanent cessation of processes |
| **Impact Extent (E)** The geographical extent of the impact on a given environmental receptor | Site: Site only | Local: Inside activity area | Regional: Outside activity area | National: National scope or level | International: Across borders or boundaries |
| **Impact Reversibility (R)** The ability of the environmental receptor to rehabilitate or restore after the activity has caused environmental change | Reversible: Recovery without rehabilitation |  | Recoverable: Recovery with rehabilitation |  | Irreversible: Not possible despite action |
| **Impact Duration (D)** The length of permanence of the impact on the environmental receptor | Immediate:  On impact | Short term:  0-5 years | Medium term: 5-15 years | Long term: Project life | Permanent: Indefinite |
| **Probability of Occurrence (P)** The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation | Improbable | Low Probability  Impacts can occur but are controllable | Probable  The impact is likely to occur but can be controlled by effective measures | Highly Probability | Definite  Definitely to occur |
| **Significance (S)** is determined by combining the above criteria in the following formula: |  | | | | |
| **IMPACT SIGNIFICANCE RATING** | | | | | |
| **Total Score** | **4 to 15** | **16 to 30** | **31 to 60** | **61 to 80** | **81 to 100** |
| **Environmental Significance Rating (Negative (-))** | **Very low** | **Low** | **Moderate** | **High** | **Very High** |
| **Environmental Significance Rating (Positive (+))** | **Very low** | **Low** | **Moderate** | **High** | **Very High** |

**Table 6.2:** Significant Impact Scores for Positive Impacts

| **Impact** | | **Magnitude** | **Extent** | **Reversibility** | **Duration** | **Probability of occurrence** | **TOTAL SCORE** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **DURING PLANNING AND DESIGN** | | | | | | | |
| 1 | Creation of temporary jobs | 1 | 1 | 1 | 1 | 2 | **8** |
| **DURING CONSTRUCTION** | | | | | | | |
| 1 | Creation of temporary jobs | 4 | 2 | 3 | 2 | 2 | **22** |
| 2 | Increased business opportunities | 1 | 2 | 1 | 2 | 2 | **12** |
| 3 | Increased skills transfer to local people | 2 | 2 | 2 | 5 | 3 | **33** |
| **DURING OPERATION AND MAINTENANCE** | | | | | | | |
| 1 | Improved aesthetic appearance of the Hospital sections | 5 | 2 | 4 | 4 | 5 | **75** |
| 2 | Improved sanitation services at the Hospital | 4 | 2 | 3 | 4 | 5 | **65** |
| 3 | Increased space for X-ray services leading to improved service delivery | 5 | 3 | 3 | 5 | 5 | **80** |
| 4 | Reduced infections at the facility | 4 | 2 | 3 | 4 | 4 | **52** |

**Table 6.3:** Significant Impact Scores for Negative Impacts

| **Impact** | | **Magnitude or extent** | **Extent** | **Reversibility** | **Duration** | **Probability of occurrence** | **TOTAL SCORE** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **DURING PLANNING AND DESIGN** | | | | | | | |
| 1 | Increased inefficient use of resources | -3 | -2 | -3 | -2 | -5 | **-50** |
| 2 | Poor Stakeholder Engagement | -3 | -2 | -3 | -2 | -5 | **-50** |
| **DURING CONSTRUCTION** | | | | | | | |
| 1 | Temporary disruption of Hospital services and displacement of patients at the facility | -4 | -2 | -5 | -2 | -5 | **-65** |
| 3 | Blockage of passages to the other departments near the site of rehabilitation works | -3 | -2 | -3 | -2 | -5 | **-50** |
| 4 | Increased generation of solid waste | -3 | -2 | -3 | -2 | -5 | **-50** |
| 5 | Increased dust emissions | -3 | -2 | -3 | -2 | -4 | **-40** |
| 6 | Increased noise pollution | -3 | -2 | -3 | -2 | -4 | **-40** |
| 7 | Increased risk of generation of hazardous wastes | -3 | -2 | -3 | -2 | -4 | **-40** |
| 8 | Increased risk of child labour | -3 | -2 | -3 | -2 | -3 | **-30** |
| 9 | Occupational safety and health risks | -3 | -2 | -3 | -2 | -5 | **-50** |
| 10 | Risk of Exposure to chemicals to workers and public | -3 | -2 | -3 | -2 | -5 | **-50** |
| 11 | Increased risk of Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) and defilement | -2 | -3 | -2 | -3 | -3 | **-30** |
| 12 | Increased theft cases | -2 | -2 | -2 | -2 | -3 | **-24** |
| 13 | Potential increase of water bills | -2 | -2 | -3 | -2 | -4 | **-36** |
| 14 | Increased risk of spread of HIV and AIDS and STIs and other communicable diseases | -2 | -3 | -5 | -5 | -2 | **-30** |
| 15 | Increased Risk of Spread of COVID- 19 | -2 | -3 | -5 | -5 | -2 | **-30** |
| 16 | Increased risk of child marriage | -3 | -2 | -3 | -2 | -3 | **-30** |
| 18 | Increased risk of public Health and safety | -3 | -2 | -2 | -2 | -4 | **-36** |
| 19 | Increased risk of ACMs exposure posing health hazards | -4 | -2 | -3 | -4 | -5 | **-65** |
| 20 | Increased risks of works disruptions and storage area flooding due to occurrence of natural hazards | -4 | -2 | -3 | -2 | -4 | **-44** |
| 21 | Increased Air pollution | -3 | -2 | -3 | -2 | -3 | **-30** |
| 22 | Increased risk of traffic accidents at the hospital and in the community | -4 | -2 | -3 | -2 | -4 | **-44** |
| **DURING DEMOBILISATION** | | | | | | | |
| 1 | Loss of jobs and other economic benefits | -1 | -2 | -2 | -2 | -5 | **-35** |
| **DURING OPERATION AND MAINTENANCE** | | | | | | | |
| 1 | Increased risk of leakage radiation or stray radiation | -2 | -2 | -3 | -2 | -3 | **-30** |
| 2 | Reduced ventilation in the demarcated wards | -3 | -2 | -3 | -2 | -4 | **-40** |
| 3 | Increased risks of fire outbreaks | -3 | -2 | -3 | -4 | -4 | **-48** |
| 4 | Increased vulnerabilities amongst the persons living with physical disabilities and patients | -3 | -2 | -3 | -4 | -4 | **-48** |
| 5 | Increased risk of fire | -3 | -2 | -3 | -2 | -5 | **-50** |
| 6 | Poor solid waste management due to existing inefficiencies | -2 | -2 | -3 | -2 | -4 | **-48** |
| 7 | Poor management Health care waste resulting to risk of infections | -3 | -2 | -3 | -2 | -5 | **-50** |
| 8 | Poor liquid waste management | -3 | -2 | -2 | -2 | -3 | **-47** |
| 9 | Air pollution due to operational risks in operating incinerator | -2 | -2 | -2 | -2 | -5 | **-48** |
| 10 | Potential for increased use of energy and water | -3 | -2 | -3 | -2 | -3 | **-48** |

The tables above present individual and total scores for each impact of the proposed KCH rehabilitation project against the five attributes namely magnitude, Extent, significance, probability of occurrence and duration. More focus should be on the impacts with high total scores. All positive impacts are to be enhanced since they will contribute to the sustainability of the project. However, On overall, the Significance of negative impacts are between low and moderate impact, and hence this ESMP has provided mitigation measures for the impacts.

# ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLANS

* 1. **Overview**

This chapter presents the Environmental and social management plan and its associated monitoring plan comprising verifiable indicators, frequency of monitoring, responsible organizations for carrying out the monitoring and those for receiving the reports. Table 7-1 presents a combined Environmental and Social Management Plan and Environmental and Social Monitoring plan here termed Environmental and Social Management and Monitoring Plan(ESMMP) for the rehabilitation of selected sections at Kamuzu Central Hospital in Lilongwe.

**Environmental and Social Management and Monitoring Plan (ESMMP)**

The Plan stipulates actions that should be undertaken by relevant stakeholders including proponent, contractor, communities and government. The plan also guides the process of mitigating negative impacts that have been identified at all stages of the project cycle and enhances realization of the positive impacts of the project.

The ESMMP is vital tool in ensuring that the environmental and social management plan is implemented. The monitoring plan (in Table 7-1) comprises verifiable indicators, frequency of monitoring, responsible organizations for carrying out the monitoring and those for receiving the reports. The ESMMP provides for monitoring to checking implementation of the enhancement and mitigation measures proposed in the ESMP.

**Table 7-1:** Environmental and Social Management Plan (ESMP) and Monitoring Plan for proposed Rehabilitation of selected sections at Kamuzu Central Hospital

|  |  |  |  |  |  | **Responsibility** | |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Potential Impact** | **Recommended Enhancement / Mitigation Measure** | **Performance Indicator** | **Target** | **Means of Verification** | **Enhancement and Mitigation Measures** | **Monitoring** | **Timeframe** | **Implementation Cost (MMK)** | **Monitoring Cost (MMK)** |
| **POSITIVE IMPACTS** | | | | | | | | | | |
| **PLANNING PHASE** | | | | | | | | | | |
| 1 | **Creation of temporary Jobs** | * Prioritize employment of Malawian consultants and Communities * Give equal opportunities for employment to both males and females. | Number of local consultants/ people employed (males versus Females). | 2 contracts given  to local  consultants | Employment records | MC-ERHSP Project management | MoH | Throughout project planning phase | N/A | N/A |
| **CONSTRUCTION/ REHABILITATION PHASE** | | | | | | | | | | |
| 1 | **Creation of temporary jobs** | * Give priority to local communities for both skilled and unskilled workers' employment, with all unskilled workers sourced from the surrounding local communities. * Pay good wages/ salaries commensurate with Government regulations. * Give equal opportunities for employment to both males and females. | Number of people employed | All unskilled laborers from project area.  40% of the labour force is women | Employment records | Contractors | MC-ERHSP Project | During rehabilitation | N/A | N/A |
| 2 | **Increased Business Opportunities** | * Increase space on the existing market to accommodate new entrants | Size of space created for new entrants | At least 10% of space created | Market records | KCH management | MC-ERHSP Project | During rehabilitation | NA | N/A |
| 3 | **Increased skills transfer to local people** | * Employ locals as among skilled workers. | % of local people employed in technical positions | 10 % of skilled personnel from project area.  40% of skilled personnel to be women | Employment records | Contractor | MC-ERHSP project team | During Rehabilitation works | NA | ,NA |
| **OPERATION AND MAINTENANCE PHASE** | | | | | | | | | | |
| 1 | **Improved aesthetic appearance of the infrastructure** | * + Implement activities as planned with experienced contractors.   + Maintain the infrastructure regularly for quality sustenance   Install safety measures such as lightning arrestor, fire alarm etc. to enhance safety of the hospital building   * + Extend the rehabilitation works to all sections currently in dilapidated state as well as installing disability friendly structures funds permitting. | Checking Plan against implementation  Maintenance schedule | 100% planned infrastructure and its amenities and safety measures in place  Maintenance schedule in place | Visual inspection  Inspection of maintenance records | KCH Management, | DHO | Before and during operation and maintenance | Part of project and operational cost | NA |
| 2 | **Improved sanitation services at the institution** | * + Install durable sanitary fittings to sustain the benefits of improved sanitation.   + Establish regular maintenance schedules for all sanitation facilities to prevent breakdowns and ensure continuous operation. | Type of sanitary materials and fixtures installed  Maintenance schedule in place | All broken sanitary equipment fixed or replaced with new ones to support people of that section | Records and specifications of and sanitary equipment replaced  new sanitary equipment installed | Contractor; KCH Management, | MC-ERHSP project team/DHO | Before and during operation and maintenance | Part of project costs | Project costs |
| 3 | **Increased space for X-ray services leading to improved service delivery** | * + Rehabilitate the radiology room with input from the hospital authorities to incorporate their needs into the design   + Install appropriate shielding materials as per regulatory standards from the Atomic Energy Regulatory Authority   + Conduct a comprehensive structural assessment of the existing building before beginning opening walls and construction.   + Develop detailed blueprints and construction plans that account for the building's structural integrity.   + Plan the rehabilitation work in phases to manage and control the structural impacts   + Implement permanent reinforcement measures where necessary, to maintain structural integrity.   + Ensure the presence of qualified construction engineers and/or supervisors during the works | -Structural assessment report completed and reviewed  -Presence and integrity of fencing around the construction site | -Complete the structural assessment report before the start of construction  -fencing around 100% of the perimeter of refurbished spaces before starting construction. | -Copy of the structural assessment report, review meeting minutes.  -Inspection reports | Structural Engineer; Contractor, Hospital management; | MC-ERHSP Project, Director of Public works | Before and during rehabilitation works | Part of project costs |  |
| 4 | **Increased water and sanitation services at the Hospital** | * Install state-of-the-art plumbing systems that ensure efficient water usage and reduce leakage. * Install water-efficient fixtures such as low-flow faucets, toilets, and showerheads to conserve water. * Establish regular maintenance schedules for all water and sanitation facilities to prevent breakdowns | Type of plumbing infrastructures and fixtures installed  Maintenance schedule in place | New electrical and plumbing as well as efficient fixtures to support 80 people | Records and specifications of  new plumbing upgrades and infrastructure installed | Contractor; Hospital Management, | MC-ERHSP Project management, | Before and during operation | Part of operational cost | NA |
| 5 | **Improved Infection prevention and control** | * Replace broken fixtures with more durable, easy-to-clean options. * Establish regular maintenance schedules for all sanitation facilities to prevent breakdowns and ensure continuous operation * Provide staff members, construction workers and visitors with information on infection control policies and procedures | Type and specifications of sanitary fixtures procured and to be fixed  Infection prevention and control information provided | Durable types of sanitary fixtures  80% of staff, construction workers and visitors are sensitized on infection prevention and control | Records and specifications  Records of information dissemination | Contractor; Hospital Management | MC-ERHSP Project management, | Before and during operation | Part of project cost | NA |
| **NEGATIVE IMPACTS** | | | | | | | | | | |
| **PLANNING / PRE-CONSTRUCTION STAGE** | | | | | | | | | | |
| 1 | **Increased inefficient use of resources** | * + Conduct comprehensive EHS audit covering all areas of hospital operations, including waste management, energy use, water consumption, patient safety protocols, and compliance with relevant regulations.   + Develop a corrective action plan based on the audit findings (this may include improvements in waste segregation practices, updating waste storage facilities, or enhancing employee and patient safety measures)   + Make sure the project complies with the WB ESS4 measures |  |  |  |  |  |  |  |  |
| 2 | Poor Stakeholder Engagement | * + Conduct regular training for staff on the EHS practices to be implemented during construction phase.   + Appoint an EHS officer responsible for conducting routine checks and generating reports to ensure compliance with environmental and safety regulations during project implementation.   + Engage with the patients/ guardians and stakeholders on upcoming rehabilitation works to ensure transparency and foster good relationships regarding the project |  |  |  |  |  |  |  |  |
| **CONSTRUCTION/ REHABILITATION STAGE** | | | | | | | | | | |
| 1 | **Temporary disruption of Hospital services and Patients displacement** | * + Implement the Hospital Services and Patients Displacement Plan (appendix 9) and should be included in bid documents and detailed in the C-ESMP   + Involve stakeholders in planning process to understand their needs and concerns.   + Redirect services to other parts of the facility   + Move patients to nearby hospitals to access radiology and other services that need specialized rooms.   + Undertake rehabilitation in a phased manner so that patients and guardians have access to critical services always including toilets.   + Provide regular updates to stakeholders about the project’s progress and any impacts on services.   + Utilize alternative or Unused Spaces /underutilized spaces to temporarily accommodate displaced services and patients.   + Prioritize critical services and ensure they remain operational.   + Plan for staggered displacement of services to avoid overwhelming any single area or department.   + Communicate about the project and any changes to services.   + Use clear signage to direct patients to temporary locations of services.   + Implement the works according to scheduled time | Plans in place versus implementation schedules  Stakeholder consultation plan and communication channels in place  Alternative/ underutilized spaces identified to accommodate displaced services/ patients | 100% implementation based on plans  100% of relevant stakeholders consulted before service disruption  100% all disrupted services relocated and signage on directions to new places in place | Visual inspection  Stakeholder consultation records  Records of new places identified for disrupted services and signage in place | Hospital Management, | MC-ERHSP Project | Before and During rehabilitation works | 2,000,000 | 800,000 |
| 2. | **Blockage of passages to the other departments near the site of rehabilitation works** | * + Relocate all affected passages before commencement of rehabilitation works.   + Sensitize staff and patients on newly designated passages.   + Install temporary ramps for wheelchair people in new redirected passages/ spaces)   + Use clear signage within the hospital to direct staff and patients | Number of passages blocked against newly created | 50% newly created passages with staff and patients sensitized on the location of newly created passages | Visual Inspection | KCH management Contractor, | MC-ERHSP Project management, Supervision Engineer | Before and during Rehabilitation works | 1,500,000 | 400,000 |
| 3 | **Increased generation of solid waste** | * + Develop and implement a waste management plan that includes segregation, recycling, and proper disposal of construction waste as part of C-ESMP.   + Prohibit littering inside offices and around the Facility   + Train workers and staff on proper waste segregation procedures, ensuring everyone understands the risks and responsibilities.   + Provide adequate clearly labeled bins on-site for different types of waste.   + Set up secure, well-contained waste storage areas to prevent littering, contamination, and exposure to weather.   + Promote recycling and reuse of waste where possible.   + Dispose solid waste at designated waste disposal area at A38 dumpsite | Waste Management Plan in Place  Number of workers trained  Number of bins in place  Amount of recycled and reused waste against total generated  Amount of waste disposed at dumpsite against total generated | - 100% workers and staff trained in waste segregation ad management  -At least one labelled bin is available for each waste stream  50% waste recycled or reused  Achieve segregation rate of 90% or higher in first 3 months during construction | -Number of labelled bins in place and with waste segregated according to type  Secure waste storage area in place  Records for recycled reused and dumped wastes | Contractor | KCH Management,  MC-ERHSP Project management,  Supervision Engineer | During Rehabilitation works | 500,000 | 200,000 |
| 4 | **Increased air pollution due to dust and vehicles emissions** | * + Suppress dust regularly using water and regular cleaning to minimize the spread of dust   + Provide PPE to workers.   + Line surfaces where cement, paints and oils will be stored.   + Line the floor during painting and use of lubricants.   + Remove contaminated soil or spills immediately they are contaminated so that run-off do not wash the spills to the water bodies.   + Servicing of machinery to be done in designated lined areas   + Use closed/covered trucks for transportation of construction materials   + Fence the construction site to contain dust   + Offload and store construction materials on spaces away from patients and only bring sizeable amounts to the locations of works to avoid dust emissions. | -Number of complaints dust emissions  Use of PPE  -Water suppression equipment visible  -Records of how construction materials are delivered on the site  Fence in place | 0 complaints on dust emissions  100 % of stockpiles and haulage vehicles carrying fine materials (e.g., sand, gravel,  quarry dust and gravel covered and wetted where necessary  100% construction site fenced | Site Inspection  Random Interviews | Contractor | MC-ERHSP Project, KCH management; EDO; Supervision Engineer | During rehabilitation works | 500,000 | 400,000 |
| 5 | **Increased noise pollution** | * + Implement the Hospital Services and Patients Displacement mitigation Plan (appendix 9) and to be included in the construction contract bid package as well as detailed in the Contractors-ESMP.   + Fence the construction site   + Use equipment with noise silencers   + Sensitize community on time of noisy activities   + Use well maintained equipment and vehicles   + Limit works to daytime to avoid disturbing patients at night.   + Sensitize workers to keep voices down.   + Avoid unnecessary movement of construction vehicles at the facility. | Existence of fence  Existence of equipment with noise silencers  Notices to surrounding community on time of conducting very noise activities.  Number of Complaints on noise | 0 number of period when highest levels of noise are recorded (A notice should be issued out for every high noise level to be generated)  0 complaints on noise | -Site Inspection  -Random interviews to workers and surrounding communities  -Notices issued for very high noise level activities  GRM records | Contractor | MC-ERHSP Project, Hospital management  Supervision Engineer | Before and during rehabilitation works | Part of project cost | 400,000 |
| 6 | **Increased generation of hazardous wastes.** | * + Develop and implement waste management plan   + Substitute hazardous construction materials with nonhazardous alternatives   + Segregate scrap metals and glass from other waste streams to ensure safe handling.   + Line surfaces where cement, paints and oils will be stored.   + Line the floor during painting and use of lubricants.   + Remove contaminated soil or spills immediately they are contaminated so that run-off do not wash the spills to the water bodies.   + Servicing of machinery to be done in designated lined areas   + Secure storage and label all storage areas for hazardous wastes to minimize the risk of accidents, spills, or contamination.   + Store hazardous waste at designated locations before final disposal at appropriate agreed sites with local authorities.   + Dispose hazardous wastes at designated places and by a competent authority. | Waste Management Plan available  Existence of designated and secure areas for storage of hazardous waste  Existence of plan for disposal of hazardous wastes | 100% hazardous waste managed and collected for eventual safe disposal | Visual Inspection  Waste disposal reports | Contractor | MC-ERHSP Project, KCH management; EDO;/ LL City Council  Supervision Engineer | During Construction | 500,000 | 400,000 |
| 7 | **Increased risk of child labour** | * + Employ only those aged 18 years and above as workers by checking their IDs.   + Sensitize surrounding communities on child labour | Employee Records  Number of sensitization meetings/materials on violence against children | 0 underage workers employed at the site | Inspection of records  Random Interviews | Contractor | MC-ERHSP Project, Hospital management; District Labour Office, | During Construction | Part of the project | 400,000 |
| 8 | **Occupational safety and health risks** | * + Develop and implement a Health and Safety Plan   + Conduct risk assessment before commencement of works   + Conduct regular safety inspections to ensure maximum safety of workers.   + Conduct risk assessments before any works   + Enforce strict safety protocols and reporting mechanisms.   + Train all workers on proper use and handling of equipment.   + Always provide all workers with PPE and effective use of such.   + Install signage in all critical areas and indicating “Danger equipment” “Pedestrian walking”, “No parking”, slow down “Stop” etc.   + Provide First Aid Kit and Firefighting equipment.   + Provide safe scaffolding equipment.   + Toolbox talks   + Use of competent workers for specialized works   + Trainings/ refreshers on technical assignments   + Good housekeeping practices | Health and Safety plan available  Risk assessments available  Safety protocols in place including reporting mechanisms.  Risk assessment  Number of workers trained on safety issues  Presence of warning signs and equipped First Aid kit  Records on PPE in use | 0 accidents occurrence and reported | Site inspection  Inspection risk assessment and accident reports/ records | Contractor | MC-ERHSP Project, KCH management; District Labour office  Supervision Engineer | During construction | 2,000,000 | 400,000 |
| 9 | **Risk of chemical exposure to workers and public** | * + Replace hazardous chemicals with low-VOC/ VOC-free paints and sealants or non-toxic alternatives where possible.   + Provide regular training on the proper handling, storage, and disposal of hazardous chemicals.   + Develop and enforce safe work practices, such as proper labeling of chemicals and implementing emergency procedures.   + Store hazardous chemicals in labeled, secure containers and in designated storage areas   + Provide suitable PPE   + Ensure the availability of first aid kits and trained personnel to provide immediate medical assistance   + Follow proper disposal procedures for hazardous chemicals   + Dispose hazardous chemicals in consultation with LCC and MEPA | Safety protocols in place including reporting mechanisms.  Number of workers trained on safety issues  Presence of storage area of hazardous chemicals  Presence of equipped First Aid kit  Records on PPE in use | 0 chemical materials related accidents occurrence and reported | Site inspection  Inspection of accident reports/ records | Contractor | MC-ERHSP Project, KCH management | During construction | Part of project | Part of costs for physical occupational safety and health risks |
| 10 | **Increased risk of Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) including defilement** | * + Develop and implement GBV/SEA prevention Plan   + Sensitize workers and hospital community on GBV/SEA and harassment.   + Strengthen grievance redress mechanisms including reporting mechanisms for GBV/SEA and harassment.   + Conduct background checks   + Ensure workers sign and adhere to code of conduct that prohibits GBV/SEA   + Put in a place a GRM committees having GBV/SEA champions   + Map out and make available referral and support systems for GBV/SEA survivors | -Number of GBV /SEA sensitization meetings/materials in place  -Percentage of women employed.  -Number of GBV/SEA complaints registered and resolved | 0 incidence of gender-based violence and SEA involving workers | Inspection of records of GBV/SEA issues reported versus resolved | KCH management Contractor | District Gender Office, MC-ERHSP Project,  Supervision engineer | During construction | 1,000,000 | 400,000 |
| 11 | **Increased theft cases** | * + Sensitize workers on dangers and consequences of theft.   + Empower and utilize community policing.   + Extend existing security service to cover project site.   + Ensure workers sign and adhere to a code of conduct. | Number of sensitization meetings/materials on theft issues  Reports of theft incidences  Records of involvement of existing security personnel | 0 incidences of theft reported involving construction workers | Random Interviews  Inspection of security records if they cover the project site | Contractor, KCH management, | MC-ERHSP Project, | During construction | 1,500,000 | 200,000 |
| 12 | **Potential increase of water bills** | * + Develop and implement Water Resources Management Plan   + Use water from Lilongwe River for construction purposes   + Agree on payment arrangements for water bills by the hospital and contractor   + Engage in other water management options during rehabilitation works to conserve water | Water resources management plan in place  Use of water from Lilongwe river for construction  Water payment agreement in place  Water conservation measures in place | 100% of all water bills incurred during rehabilitation works are paid for by the contractor | Signed Water payment agreement | Contractor, Hospital management, | MC-ERHSP Project,  Supervision engineer | During construction | N/A | N/A |
| 13 | **Increased risk of spread of HIV and AIDS and STIs and other communicable diseases** | * + Develop and implement HIV and AIDs workplace Policy   + Sensitize workers on HIV and AIDS and STIs, including how it is transmitted, prevention methods, and the importance of getting tested.   + Provide and train workers on condoms use.   + Allow infected workers to access Anti-Retroviral Treatment (ART) from any health facilities of their choice; and   + Employ workers from the surrounding sub-project site to minimize promiscuity. | Number of sensitization meetings/ signage available  Condoms distributed | 0 new cases of HIV and AIDS | Inspection of monthly progress reports and Health records | Contractor | MC-ERHSP Project, District Health Office,  Supervision engineer | During construction | 1,000,000 | 200,000 |
| 14 | **Increased Risk of Spread of COVID- 19** | * + Conduct sensitizations COVID-19 symptoms and prevention to workers.   + Provide equipment to enhance hygiene i.e. water for washing hands, soap and sanitizers is made available at all time in the work premises   + Adhere to Covid-19 measures as specified by government.   + Make protective face masks available at the workplace for those potentially ill can wear to avoid Covid-19 spread. | Number of Awareness campaigns/ Signage available  Sanitary and protective materials distributed and in use  COVID-19 Policy in Place | 0 new cases of COVID-19 | Monthly progress reports and Inspection of health records | Contractor | MC-ERHSP Project, District Health Office,  Supervision engineer | During construction | 1,000,000 | 200,000 |
| 15 | **Increased risk of child marriage** | * + Conduct community awareness campaigns to on child marriage and the benefits of keeping girls in school.   + Prioritize local community members in employment to enhance economic stability and reduce the perceived need for child marriage.   + Facilitate signing of code of conduct by all workers before engagement as a worker with No to child marriage being among the requirements   + Sensitize on GRM and respective reporting mechanisms for reporting any suspected cases of child marriage. | Number of sensitization meetings/materials on child marriage and its respective GRM  Code of conduct signed  Employee records | 0 cases of child marriage reported | Inspection of records | Contractor | MC-ERHSP Project, Hospital management; District Labour Office,  Supervision Engineer | During Construction | 200,000 | 200,000 |
| 16 | **Increased risk of public health and safety including traffic accidents** | * + Identify and designate specific routes for construction vehicles to minimize their movement through the hospital premises and residential areas.   + Install speed bumps or rumble strips to slow down traffic within the hospital, residential or school zones.   + Sensitize hospital community of the works and how to stay safe   + Fence the construction site to limit access.   + Put safety tape around all potentially dangerous spaces.   + Install signage to limit access.   + Limit vehicle speeds to 20km/hour within the hospital premises to avoid accidents.   + Use nontoxic, nonallergenic, and do not include volatile organic compound (VOC)-emitting paints and sealants. | Number of people sensitized  Fence in place  Signage/ safety tape in place in all potentially dangerous areas  Materials being used | 100% construction site is fenced, and signage/ warning signs put in place  100% materials being used have nontoxic and non-allergenic compounds | Site inspection  Reports | Contractor | Hospital management  MC-ERHSP Project,  Supervision engineer | During rehabilitation works | 1, 500,000 | 200,000 |
| 17 | **Increased risk of asbestos exposure to workers and community** | * + Undertaking an asbestos audit prior to/at the beginning of the rehabilitation of each section.   + Once presence is known or potential Asbestos fibers are detected, follow ACM management plan in Appendix 8 for asbestos management.   + Train workers in Asbestos containing materials identification and handling and Provide appropriate PPE to workers and always ensure use   + Dispose ACM in consultation with MEPA and LCC | Asbestos audit report for each section  Training report for asbestos identification and handling by workers  PPE in place and in use | All sections to be rehabilitated fully assessed for ACMs presence  100% workers trained in ACM identification and handling  Reporting mechanisms for asbestos finds in place throughout works | Training report and Monthly progress report | KCH management, MC-ERHSP Project, Contractor | Ministry of Health  Supervision Engineer | Before and during construction | 1,700,000 | 300,000 |
| 18 | **Increased Spread of water borne diseases e.g. Malaria, diarrhea** | * + Ensure all water containers (e.g., buckets, tanks) are covered or turned upside down to prevent mosquito breeding.   + Regularly inspect the construction site for any areas where water is accumulating and drain or treat these areas.   + Set up handwashing stations with soap and clean water at the construction site, ensuring workers practice good hygiene.   + Install sufficient, well-maintained portable toilets or sanitation units for construction workers, ensuring they are cleaned regularly to prevent contamination.   + Use tap water for cooking and drinking by workers | Existence of source of clean water for drinking and cooking  Existence of clean toilets  Existence of messages or materials to ensure proper hygiene among workers  All surfaces properly drained | 0 cases of diarrhea and malaria reported due to the project | Monthly progress reports and Inspection of sites and health records | Contractor | MC-ERHSP Project, | during construction | 1,000,000 | 200,000 |
| 19 | **Increased risks of fire outbreaks** | * + Install safety measures e.g. lightning arrestors, fire alarm etc. to enhance safety   + Equip all rehabilitated sections with fire extinguishers and water hydrants   + Install signage for all fire exit points and sensitize all occupants on where those exit points are   + Identify fire assembly points and train workers and occupants to escape in case of fire outbreak   + Develop an emergency response plan | Fire safety features in place  Emergency response plan in place | Each sections rehabilitated to be equipped with at least two fire safety measures  All fire exit doors to have proper signage | Site inspection | Contractor | MC-ERHSP Project, | during construction | 500,000 | N/A |
| 20 | **Increased risks of works disruptions and storage area flooding due to occurrence of natural hazards e.g. storms during construction** | * + Regularly monitor weather forecasts and storm warnings to anticipate adverse weather conditions.   + Use weather tracking systems to provide real-time updates to construction teams to   + Elevate Storage Areas above potential flood levels, ensuring that materials and equipment are not in direct contact with the ground.   + Employ waterproof covers, or enclosures to protect sensitive materials and tools.   + Design and implement robust drainage systems to channel excess water away from the construction site and storage areas.   + Regularly inspect and maintain drainage infrastructure to ensure it remains functional during heavy rainfall.   + Plan for potential weather-related disruptions by building flexibility into the project timeline, to allow for rescheduling work around storm events.   + Develop and implement emergency response plans in case of storm-related incidents, including flood evacuation procedures and protocols for securing equipment and materials. | Drainage systems in place/ elevated storage areas in place  Emergency response plans for storm-related incidents, including flood evacuation procedures and protocols in place | At least 1 feature to help reduce risk of disruptions due to natural hazards e.g. storms in place | Site inspection | Contractor | MC-ERHSP Project, | Before and during construction | 500,000 | N/A |
| **OPERATION AND MAINTENANCE PHASE** | | | | | | | | | | |
| 1 | **Increased risk of leakage radiation or stray radiation** | * + Ensure proper shielding with lead-lined walls, doors, and windows.   + Follow regulatory guidelines for radiation protection in construction materials and methods.   + Use experienced and qualified contractors who adhere to best practices in construction safety and environmental management.   + Regularly monitor and inspect construction activities to ensure compliance with safety and environmental standards.   + Regular maintenance of the facility | -Completion and quality of installation of lead-lined walls, doors, and windows.  -Radiation leakage levels in shielded areas | -100% installation of required lead-lined materials before the facility is operational.  -Radiation leakage levels within regulatory limits (e.g., as specified by national health and safety regulations). | -Inspection reports,  - Certification of materials,  -Radiation leakage test reports, | Hospital management, | MOH DHO | operation phase | 400,000  (for monitoring while other measures will be financed from project costs) | 200,000 |
| 2 | **Reduced ventilation in the demarcated wards** | * + Increase the size of the front section of the demarcated ward to allow air circulation into the new wards. | Increased size of the original windows | All the windows constructed as designed to allow adequate ventilation | Larger windows than current in place | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| 3 | **Increased risks of fire outbreaks** | * + Install and maintain safety measures e.g. lightning arrestors, fire alarm etc. to enhance safety   + Equip all rehabilitated sections with fire extinguishers and water hydrants   + Install signage for all fire exit points and sensitize all occupants on where those exit points are   + Identify fire assembly points and train workers and occupants to escape in case of fire outbreak   + Develop an emergency response plan | Fire safety features in place  Emergency response plan in place | Each sections rehabilitated to be equipped with at least two fire safety measures  All fire exit doors to have proper signage | Site inspection | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| 4 | **Increased vulnerabilities amongst persons living with physical disabilities and patients in accessing the rehabilitated facilities** | * + Maintain faulty elevators during rehabilitation. | Maintained faulty elevators in the targeted building | All faulty elevators in the targeted building for rehabilitation maintained | Site inspection | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| 5 | **Potential increase in energy and water use** | * + Employ power saving technologies such as energy saver bulbs   + Switch of bulbs and appliances when not in use   + Implement water-saving technologies such as low-flow faucets, toilets, and showerheads in sanitary rooms.   + Implement leak detection and repair programs to promptly address any water leaks in infrastructure or equipment.   + Encourage water conservation practices among workers through sensitizations. | Reduced energy and water bills | Entire hospital facility | Bill records | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| **5** | **Poor solid waste management due to increased inefficiencies during operation** | * + Conduct yearly comprehensive environmental audits of the facility to ensure that it is meeting solid waste management standard for a Health care facility   + Ensure the incinerator is well serviced   + Ensure color coded waste bins are provided for segregation of wastes   + Ensure waste storage areas are enclosed, clean and tidy.   + Conduct quarterly training of hospital personnel on waste management at the facility | An audit conducted  Incinerator serviced  Number of staff trained in waste management | Once a year | Reports  Site inspections and records | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| **6** | Poor liquid waste management | * + Conduct yearly comprehensive environmental audits of the facility to ensure they follow applicable environmental legislation   + Assess compliance of the wastewater discharges with the applicable discharge standards.   + Ascertain that LWB’s capacity to handle Health care waste is maintained   + Conduct quarterly training of hospital personnel on waste management at the facility   + Ensure regular maintenance of the wastewater system of the facility. | Audits conducted  Number staff trained  maintenance of the facilities | Once a year | Reports  Site inspections and records | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| **7** | **Increased risk of infections due to poor management of health care wastes** | * + The MoH and KCH must continue to train and sensitize its staff in infection control and best practices for managing infectious wastes.   + Regularly monitor performance of equipment such as incinerator and carry out maintenance.   + Ensure there is enough supply of PPE for infections prevention and control for health care workers; |  | Once a yesr | Reports  Site inspections and records | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| **8** | **Air pollution and operational risks from incineration of wastes** | * + Sort the waste to ensure only combustible waste goes into incinerators.   + Train staff on how to operate the incinerators.   + Plant trees around in the hospital area to help absorb emissions.   + Regularly maintain the incinerator; and   + Orienting staff to the Infection Control and Waste Management (ICWM) practices |  | Once a year | Reports  Site inspections and records | Hospital management, | MoH | operation phase | Hospital operation costs | N/A |
| **Total** | | | | |  |  |  |  | **19,500,000** | **7,300,000** |

* 1. **Implementation of ESMP**

The ESMMP shall be implemented to address all activities that have been identified to have potentially significant impacts on the environment during project implementation and operation. The implementation of the project environment and social component will be overseen by different institutional arrangements. The players are indicated in 7-2. However, final EHS monitoring plan for construction should be developed in C-ESMP by the contractor

Table 7‑2: ESMMP Implementation Arrangement

| **Responsible Party** | **Roles and Responsibilities** |
| --- | --- |
| Ministry of Health / PIU | Custodian of the project  Provide support, oversight, and quality control to field staff working on environmental and social risk management.  Planning and implementation of ESMP.  Ensuring that the social and environmental protection and mitigation measures in the ESMP are incorporated in the Contractor Environmental and Social Management Plans.  Supervise and monitor the progress of contractors' activities.  Provide guidance to construction teams in conducting subsequent monitoring and reporting and in undertaking corrective options.  Responsible for modifications to the ESMP when unforeseen changes are observed during implementation.  Ensure the submission of periodic environmental and social management and monitoring reports to the World Bank and notification of ES incidents (per ESCP)  Promote improved social and environmental performance through the effective use of management systems.  External communications with other implementing partners, government ministries and agencies, and non-government organisations on matters of mutual interest related to environmental management under the project development.  Ensure EHS activities and plans for the project are implemented |
| Supervision Engineer | Development of a monitoring tool or checklist based on the ESMMP and guided by the project’s physical layout.  Add and ensure all EHS requirements are in the Construction Contract including requirements stated in the LMP and this ESMP  Develop a monitoring program for the works, targeting specific project working sites, material sites, sensitive environments, social areas, and all EHS activities etc.  Prepare monthly site meetings to involve the Contractor, Client and Stakeholders.  Monthly reports in addition to continuous communications to the Contractor, Client, Authorities and Stakeholders as situations require.  The Consulting Engineer will convene monthly meetings for progress reporting by the Contractor and the supervision team.  To supervise implementation of EHS activities for the project |
| The Contractor | Customise the project ESMMP and generate a Construction Environmental and Social Management Plan as a tool to guide the implementation and monitoring of indicators. File a copy with the Resident Engineer.  Procure necessary equipment for environment measurements or engage some appropriate expert personnel for the activity in specific environment quality aspects, including air quality, noise, water, and soil quality,  Monthly reporting throughout the project period.  Implement EHS activities and plan for the project  Assign a EHS Specialist to the construction site.  coordinate with Hospital on EHS management of project and emergency response measures |
| Lilongwe District/ City Council | While the district council structures especially DESC has been involved in the ESMMP preparation, major responsibility in monitoring the implementation of the project and ensuring quality works lies with the implementing Hospital with only critical activities requiring involvement of the relevant officers from Lilongwe district/ City council e.g. the Environment, labour, social welfare and public works, Physical planning officers. |

# CAPACITY DEVELOPMENT, TRAINING AND REPORTING

* 1. **Technical Assistance support for the implementation of safeguards**

The success of effective implementation of this ESMP will rest on the availability of technical staffs and other relevant implementing parties. Thus, the design and implementation of technical capacity building program for implementing institution with the right skills and knowledge is unavoidable. This effective capacity building program could be through availing of the required resources and training of staff and all other parties involved in this ESMP implementation, including the contractor. Project implementing bodies need to understand inherent social and environmental issues and values of the proposed rehabilitation project for selected sections at Kamuzu Central Hospital and be able to identify and manage impacts.

Given less familiarity on WB ESF by staff from the implementing institution and other relevant institutions and stakeholders directly and/or indirectly engaged in the implementation of the proposed KCH rehabilitation project and to ensure successful implementation of the Environmental and Social Standards, there is need for capacity building through planning and implementation of project capacity building program. It is also proposed to provide capacity building through technical assistance to the PIU and other relevant institutions during the implementation of this ESMP and other safeguards requirements over the project period. The technical assistance will provide the necessary technical support to the PIU in its work with contractors as well as other entities involved in the implementation of the ESMP.

Given the nature of construction activities, it is anticipated that the safeguard technical assistance support and training will be provided at least 2 times (one on preconstruction phase and another on construction phase). An indicative training plan is indicated in Table 8-1. The WB safeguard specialists may participate in the capacity building activity, in the training activities if appropriate.

Other than administering trainings to staff from the implementing institution and other relevant institutions and stakeholders, the contractor will also be required to provide regular toolbox trainings to the workers. Toolbox trainings are aimed at equipping workers with capacity to avoid noncompliance to ESMP and facilitating effective implementation of remedial measures in case an incident has happened e.g. an accident. The tentative training plan is presented in Table 8-1 and reporting form in Appendix 3(b).

Table 8‑1: Tentative Training Plan and Capacity Building Approach

| **Level** | **Responsibility Party** | **Audience** | **Topics / Themes** | **Estimated Cost (MK)** |
| --- | --- | --- | --- | --- |
| Hospital Level | Environmental Specialist  MoH | Hospital Project Implementation Team | * Introduction to ESMP * Development of Monitoring Tools * Monitoring Program Development * Reporting and Communication * Emergency Response and Contingency Planning. * Fair, equitable and inclusive access and allocation of Project benefits. * Training of staff in IPC, waste management, operation of the incinerator during operation and maintenance phase | 1,000,000 |
| Contractor Level | Environmental Specialist | Supervision Engineer and Contractor Environmental and Social Expert, Contractor’s Staff | * Customizing the ESMP * Construction Environmental expectations in management of ES risks/impacts of the project and Social Management Plan (CESMP) * Project’s EHSH plans and strategies * Orientation of Contractor on Environmental expectations in management of ES risks/impacts of the project * Equipment Use for Environmental Measurements * Monthly Reporting * Compliance with Environmental and Social Standards | 1,200,000 |
| Workers level (Weekly Tool box training) | Contractor Environmental and Safety Specialist | All project Workers | * Anticipated project impacts and mitigation measures at each stage defending on specific works * Grievance Redress Mechanism (GRM), Gender based Violence (GBV), Abuse of child labour, Child marriage, Defilement * Occupational Health and Safety measures including first Aid   incident management  tool box talks  infection control protocols   * Code of Conduct | Part of project costs |

To ensure the effectiveness of the training and capacity-building plan, regular evaluations and monitoring will be conducted. This will involve:

1. Evaluate participants' knowledge before and after training sessions.
2. Collect feedback from participants to improve future training sessions.
3. Regularly review monitoring reports to ensure compliance and identify areas for improvement.
   1. **Overall ESMMP and Trainings Estimated Budget**

The Table 8-2 below lists estimated cost items for the implementation for the ESMP, which have been included in the overall project budget.

Table 8‑2: Summary ESMMP Implementation Budget

| **SN** | **Activity/Cost Item** | **Potential Cost (MMK)** |
| --- | --- | --- |
| 1 | Trainings and Capacity Building | 3, 200,000 |
| 2 | Implementation of site-specific ESMPs and other site-specific plans including permits applications | 19,500,000 |
| 3 | ESMP implementation Monitoring/ Supervision costs including (Travel budget for supervision consultant/environmental and social staff site visits) | 7,300,000 |
|  | **Total** | **31,000,000** |

**8.3 Reporting Requirements**

The ESMP implementation progress reports should be prepared which summarize the results of all monitoring. The reports will give monitoring data in a standard format (Appendix 3(a)). Performance reports should emphasize any significant violations of contract provisions by the contractor or any failure to implement requirements of the ESMP. Any significant incidents of environmental contamination should be summarized, along with actions taken to mitigate these and to prevent reoccurrence. Progress Reports should be submitted to C-ERHSP Project management team, and other relevant institutions periodically during construction, up on request. In case of follow up monitoring visit, a follow up form for reporting implementations of violations is also prepared and presented in Appendix 3(c).

Regardless of the reporting forms (see appendix 7 for Incidence reporting form) and periods, all accidents and incidents will be reported immediately. Notification will be given by the contractor to C-ERHSP Project, management team who will then report the incident to World Bank through the PIU within 48 hours of occurrence and World Bank Environmental and Social Incident Reporting Template should be used. The Template has an annex that guides incidents that are reported through ESIRT and the ones reporting during progress reports. Incidents to be reported will include but not limited to

* fatality
* serious Injuries
* Environmental Spillage
* GBV/SEA incidents

The Incident report shall include.

* Date, time and place of the incident
* Description of the incident
* Type of injury or damage sustained.
* Person involved.
* Corrective action undertaken to reduce spread or damage.

# GRIEVANCE REDRESS MECHANISM (GRM)

* 1. **General**

Grievance redress mechanism (GRM) is designed because the proposed rehabilitation project for selected sections at KCH may affect the existing social balance at the institution and surrounding community. The purpose of a GRM is to establish a way for individuals, groups, or communities affected by the project activities to provide feedback, lodge complaints/grievances and have the grievances redressed.

Complaints relating to proposed project's problems will be solved through negotiations to achieve consensus. A complaint will go through various stages before it can be transferred to the court. The enforcement unit will pay all administrative and legal fees relating to the acceptance of complaints.

During consultations with stakeholders, it was reported that Lilongwe district council has a district grievance redress mechanism committee (DGRC) and there will be need for a worker (WGRC) and community grievance redress committee (CGRC) which can be accessed and used by workers and community (hospital staff, patients and guardians the communities, community leaders) on the sub project.

The DGRC at Lilongwe District Council will be utilized as an institution to handle grievances referred from the WGRC and the CGRC. Representatives from project management and Institutional GRM will however participate in the DGRC to facilitate feedback processes. In case of failure to resolve a grievance at district level (DGRC), referral shall be made to the National Project Implementation Unit grievance redress committee (PIUGRC) as the highest committee for the project. Failure to resolve a grievance at PIUGRC level, then PAPs will be advised to seek further redress from the Courts.

* 1. **Grievance Redress Procedure**

Following the GRM structure presented in Figures 9-1 and 9-2, the redress procedure at every will have 5 stages from when a grievance is first reported to when it is resolved. These stages are outlined below as follows.

**Stage 1: Complaint Uptake**

PAPs will present their complaints or grievances to the GRMC by filling a form provided as appendix 5. A drop-in box will be provided at the hospital and community and/or any other agreed location in the community to facilitate easy uptake of grievances. A WhatsApp message phone number, toll free number or email address will also be provided for grievances uptake.

**Stage 2: GRM Registry**

All grievances received will be entered into an accessible entering recording system as the GRM registry and shall be maintained at both community and district levels.

**Stage 3: Assessment, Analysis and Response**

When a complaint is received by GRC, the GRM provides that a resolution be provided within 15 working days. Once complaints are received, the CGRC shall assess whether the complaint/grievance is related to the project or not.

**Stage 4: Resolution and Closure**

Where a resolution has been arrived at and the PAP accepts the resolution, the PAP shall be required to sign the resolution and closure section in the Grievance Community Log and Resolution Form as attached. Two members of the GRC (Chairperson and Secretary) shall also be required to counter sign. If the grievance has not been resolved at GRC, it will be referred to District GRC and if the resolution is not reached at this level, the PAP has the option of seeking legal redress from civil courts.

**Stage 5: GRM Monitoring and Evaluation**

The GRM process will have to be monitored and evaluated to ensure effectiveness of the process and that the complaints submitted and related to the project have been dully received the required attention. This will be possible by reviewing the copies of registers that the grievances were recorded by the GRC and how they complaints registered were resolved. Lilongwe district council will be required to take the leading role in collaboration with MC-ERHSP project management team. The monitoring will assist to track whether the GRM system is working efficiently and effectively and will inform the project to make any necessary adjustments. The evaluation will help to assess the impact of GRM in response to people’s complaints and whether the GRM principles were met or not during the project implementation. The visual representation of the grievance redress procedure is shown in Figure 9-1.

**Stage 5**

**GRM Monitoring and Evaluation**

WGRC or CGRC record confirmation with complainant that the grievance is closed. If grievance cannot be close, return to stage 2 by another higher Committee (DGRC then PIUGRC) (Day 12-14)

WGRC or CGRC identify action and provide response to the complainant in writing (Day 10)

**Stage 4**

**Resolution and Closure**

**Stage 3**

**Assessment, Analysis and Response**

WGRC or CGRC (depending on type of grievance) meet and assess the significance of the grievance, gather evidence and might require site visit and discussions with the stakeholders involved (Day 5-8)

**Stage 2**

**GRM Registry**

WGRC and CGRC Representatives uptake and recording the grievances in either logbook for community grievances or workers grievances depending on type of complaint. (Day 1)

**Stage 1**

**Complaint Uptake**

PAP filling a form and drop-in box provided at the University and/or any other agreed location/ Calling toll free number, emailing or sending message by phone. (Day 1)

Figure 9-1: GRM process for Rehabilitation of selected sections at Kamuzu Central Hospital

Full illustration of the GRM process is given in Figure 9-2 below.

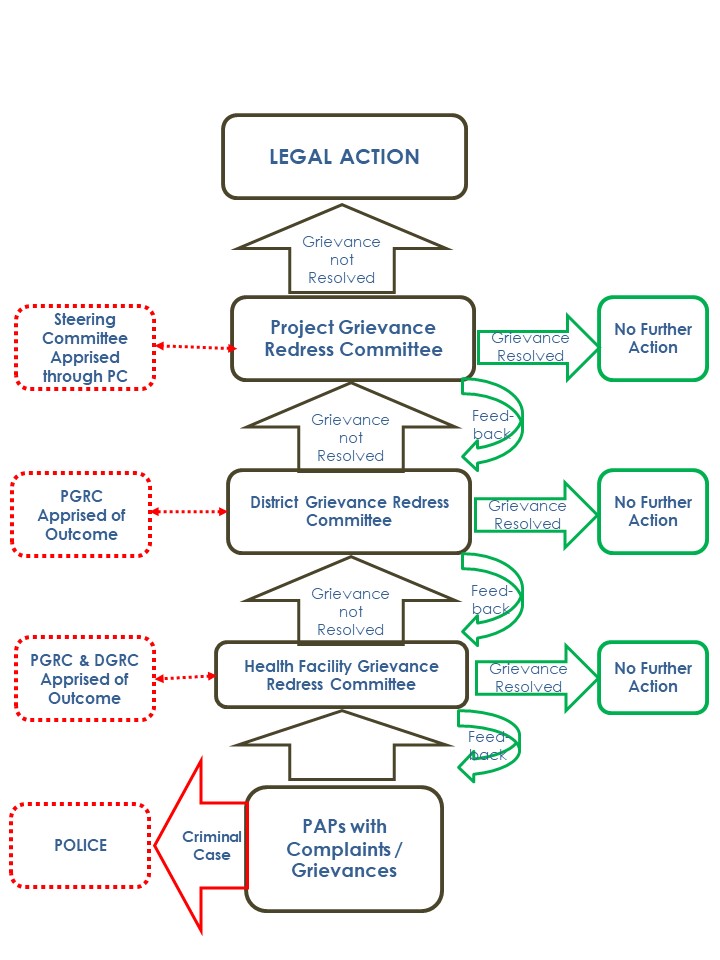


Figure 9-2: Illustrating total Processes and Institutional arrangements for the GRM

* 1. **Types of Grievances expected from the project.**

The project will receive any kind of grievances and complaints from both workers, hospital staff, patients/ guardians and communities. The types of grievances expected from the project are presented in the table 9-1.

Table 9-1: Expected community and work grievances

|  |  |
| --- | --- |
| **Community issues** | **Workers issues** |
| * Environmental issues: noise, dust, and competition for water with contractor * Social issues: sexual harassment, child labour, security concerns, GBV etc. * Radiation exposure issues * Employment issues for local community (Only recruiting migrant workers, recruitment based on corruption, dismissal from employment on unknown reasons etc.). * Compensations for injuries * Community safety | * Contract workers unhappy of not having access to Personal Protective Equipment (PPE). * Workers whose contracts are not renewed complaint i.e. Recruitment and Contract Management issues * Workers without contracts (Working without contract with purposes of not fulfilling payment agreements and easy dismissal on unknown reasons etc.) * Radiation exposure issues * Lack of clarification to overtime pay * Sexual Harassment & GBV * Worker dismissal without been given a chance to be heard. Unfair dismissal * Criminal cases |

**9.4 Recommended Grievance Redress Time Frame**

**Table 9-2 presents the recommended time frames for addressing grievance or disputes.**

**Table 9-2: Proposed GRM Time Frame**

|  |  |  |
| --- | --- | --- |
| **Step** | **Process** | **Time frame** |
| 1 | Receive and register grievance | within 24 hours of receiving complaint |
| 2 | Acknowledge | within 24 hours after registering grievance |
| 3 | Assess grievance | Within 24 hours after acknowledgement |
| 4 | Assign responsibility | Within 2 Days after assessing grievance |
| 5 | Development of response | within 7 Days after receiving grievance |
| 6 | Implementation of response if agreement is reached | within 7 Days after receiving grievance |
| 7 | Close grievance | within 2 Days after agreement is reached |
| 8 | Initiate grievance review process if no agreement is reached at the first instance | within 7 Days from date when agreement is not reached |
| 9 | Implement review recommendation and close grievance | within 14 Days after receiving grievance |
| 10 | Grievance taken to court by complainant | - |

* 1. **Specific Workers’ Grievance Mechanism**

The Project will require contractors to develop and implement a grievance mechanism for their workforce prior to the start of civil works. The construction contractors will prepare their labour management procedure before the start of civil works, which will also include detailed description of the worker’s grievance mechanism. The worker’s grievance mechanism will include:

* a procedure to receive grievances such as comment/complaint form, suggestion boxes, email, a telephone hotline.
* stipulated timeframes to respond to grievances.
* a register to record and track the timely resolution of grievances.
* an assigned staff to receive, record and track resolution of grievances.

The worker’s grievance mechanism will be described in staff induction trainings, which will be provided to all project workers. Information about the existence of the grievance mechanism will be readily available to all project workers (direct and contracted) through notice boards, the presence of “suggestion/complaint boxes”, and other means as needed. The PIU will monitor the contractors’ recording and resolution of grievances, and report these in the progress reports.

# CONCLUSIONS AND RECOMMENDATIONS

* 1. **Conclusions**

This ESMP has presented the major guidelines that have to be followed for safe execution of the works during rehabilitation project of selected sections of Kamuzu Central Hospital which is a sub project under Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP). Though the proposed project will likely generate significant socio-economic benefits to the hospital, staff and students as well as local people around Kamuzu Central hospital and the country at large, negative environmental and social impacts that the project activities are likely to bring have also been established by this ESMP.

Following the identified potential impacts, mitigation and enhancement measures have also been identified to be implemented during the implementation of the project.

* 1. **Recommendations**

Further to identification of impacts and subsequent prescription of mitigation or enhancement measures, this ESMP recommends the following.

* 1. The developer should give environmental protection and social considerations the necessary attention during implementation of the project.
  2. The developer should adopt and implement all the recommendations and mitigation measures advanced in this ESMP and respective monitoring plan.
  3. The developer should ensure adequate provision of capacity building to all key stakeholders who will be directly involved in the implementation of the project’s ESMPs, as it is an integral part to ensuring quality safeguards implementation in the project.

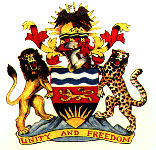
With these conditions fully met and implemented, the recommendation is for this project to be allowed to proceed.

# REFERENCES

1. Government of Malawi (2017) Environment Management Act. Ministry of Natural Resources, Lilongwe, Malawi
2. Government of Malawi (2013). Water Resources Act, Lilongwe, Malawi
3. Government of Malawi (2012). National HIV and AIDS Policy, Lilongwe, Malawi
4. Government of Malawi (2005) National Water Policy, Ministry of Irrigation and Water Development, Tikwere House, Lilongwe
5. Government of Malawi (2013). The Gender Equality Act. Ministry of Gender, Children, Disability and Social Welfare, Lilongwe, Malawi.
6. Government of Malawi (1997). The Occupation Safety Health and Welfare Act. Ministry of Labour, Youth, Sports and Manpower Development, Lilongwe, Malawi.
7. Government of Malawi (1948), Public Health Act, Ministry of Health, Malawi.
8. Government of Malawi (2011), Atomic Energy Act, 2011. Lilongwe: Government Printer.
9. Government of Malawi. (2013). Radiation Protection Regulations, 2013. Lilongwe: Government Printer.
10. Government of Malawi (2008). Environment Management (Waste Management and Sanitation) Regulations. Ministry of Natural Resources, Energy and Mining, Lilongwe, Malawi.
11. Government of Malawi. (1997). Guidelines for Environmental Impact Assessment. Lilongwe, Malawi
12. National Statistical office (2018), Population and Housing Census report, Zomba, Malawi
13. The World Bank (2017), Environmental and Social Framework, 1818 H Street NW, Washington, DC 20433, USA.

# Appendix 1(a): Environmental and Social Screening Form

**Environmental and Social Screening Form for Government Regulator**



Malawi Government

Ministry of Health

Malawi COVID-19 Emergency Response and Health Systems Preparedness Project (C-ERHSPP)

*(Guidelines: Site inspection of project site. The evaluation results to be a consensus of at least two officials)*

|  |  |
| --- | --- |
| **Sub Project Name:** *Selected section of Kamuzu Central Hospital Rehabilitation* | **District**: Lilongwe |
| **Project Location:** *Kamuzu Central Hospital*  ***Area: Lilongwe City Council***  **Section:** *Main Annex Building, Radiology* | **Nature of Sub-Project**: Rehabilitation of Selected Sections at Kamuzu Central Hospital**Size:** |
| **Names of Evaluators:**   1. **Mr. Peter Magombo** 2. **Mr. Yamikani Muronya** | **Date of Field Evaluation:** 10th May, 2023 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Appraisal** | | **Type** | **Significance** | | | ***Potential Mitigation/enhancement Measures*** |
|  |  | **Yes** | **No** | **(+ve) or (-ve)** | **Low** | **medium** | **high** |
| **1.0** | **Environmental and Social Screening** |  |  |  |  |  |  |  |
|  | Will the project generate the following impacts |  |  |  |  |  |  |  |
| 1.1 | Loss of trees/vegetation |  | √ |  |  |  |  |  |
| 1.2 | Soil erosion/siltation in the area |  | √ |  |  |  |  |  |
| 1.3 | Dust emissions | √ |  | +ve | √ |  |  | Wearing dust protective clothing |
| 1.4 | Solid and liquid wastes | √ |  | -ve | √ |  |  | -Designate waste collection site.  -Designate/ construct proper drainage system |
| 1.5 | Effluents |  | √ |  |  |  |  |  |
| 1.6 | Nuisance esp. Noise and/or smell | √ |  | -ve | √ |  |  | Use modern equipment with silencers |
| 1.7 | Spread of HIV/Aids and other STIs | √ |  | -ve | √ |  |  | -Meetings and awareness with/ to communities and contractors  -Condom distribution |
| 1.8 | Marriage interferences | √ |  | -ve | √ |  |  | -Employ mostly workers from nearby community |
| 1.9 | Borrow pits and pools of stagnant water |  | √ |  |  |  |  |  |
| 1.10 | Rubble/heaps of excavated soils |  | √ |  |  |  |  |  |
| 1.11 | Invasive tree species |  | √ |  |  |  |  |  |
| 1.12 | Damage of wildlife species and habitat |  | √ |  |  |  |  |  |
| 1.13 | Spread of water borne diseases e.g. Malaria, diarrhea | √ |  | -ve | √ |  |  | -Contractor to construct own toilets  -Workers to use clean water for cooking and drinking |
| 1.14 | Loss of soil fertility |  | √ |  |  |  |  |  |
| 1.15 | Increased use of agrochemicals (fertilizers & pesticides) |  | √ |  |  |  |  |  |
| 1.16 | Increased risk of injuries | √ |  | -ve |  | √ |  | Contractor to ensure workers wear appropriate PPE. |
| 1.17 | Contamination of water points |  | √ |  |  |  |  |  |
| 1.18 | Source of employment for local people and artisans | √ |  | +ve |  | √ |  | Contractor should prioritize hiring local people |
| 1.19 | Capacity building through skill development during construction | √ |  | +ve |  | √ |  | Contractor should prioritize hiring local people for them to benefit with experience |
| 1.20 | Acquisition of assets and equipment after commissioning |  | √ |  |  |  |  |  |
| 1.21 | Improved Socio-economic status | √ |  | +ve |  | √ |  | Contractor should hire local people |
| **2.0** | **Resettlement Screening** |  |  |  |  |  |  |  |
|  | Will the project generate the following impacts? |  |  |  |  |  |  |  |
| 2.1 | Loss of land to households |  | √ |  |  |  |  |  |
| 2.2 | Loss of properties –houses, structures |  | √ |  |  |  |  |  |
| 2.3 | Loss of trees by households |  | √ |  |  |  |  |  |
| 2.4 | Loss of crops by people |  | √ |  |  |  |  |  |
| 2.5 | Loss of access to river/forests/grazing land |  | √ |  |  |  |  |  |
| 2.6 | Loss of cultural site, graveyard land |  | √ |  |  |  |  |  |
| 2.7 | Conflicts over use of local water resources |  | √ |  |  |  |  |  |
| 2.8 | Disruption of important pathways, roads | √ |  | -ve |  | √ |  | Contractor with help of hospital to disgnate alternative routes wih signage in place |
| 2.9 | Loss of communal facilities |  | √ |  |  |  |  |  |

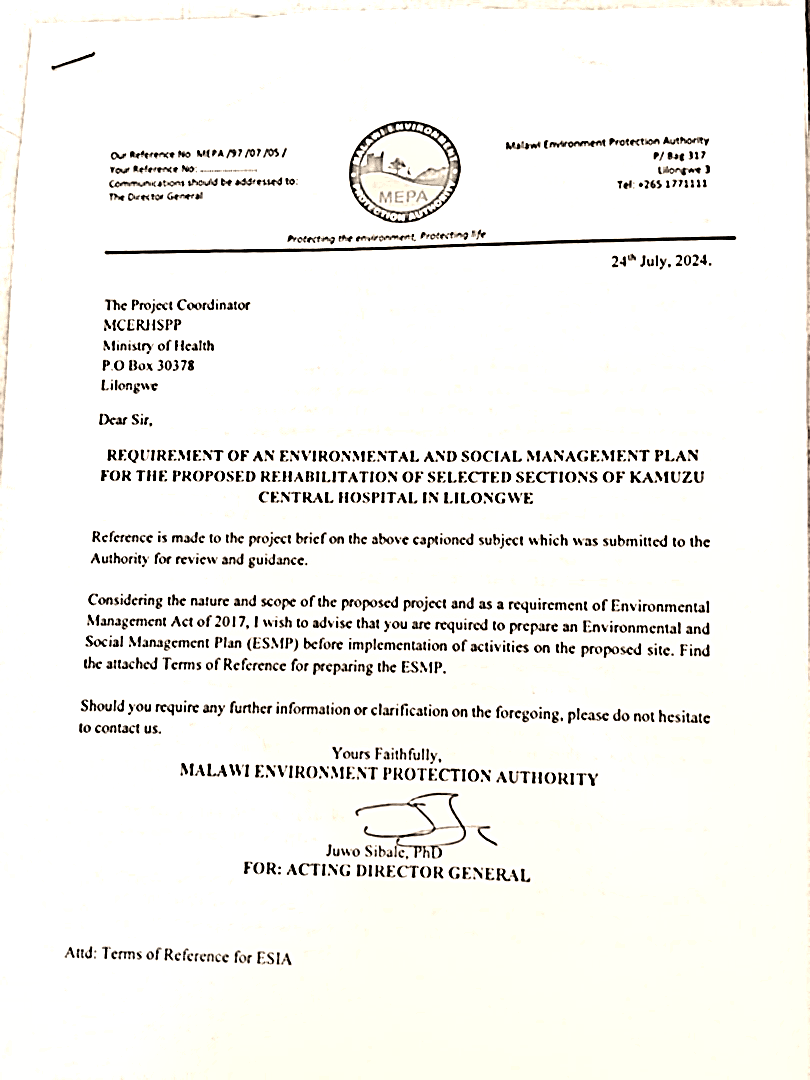
**Overall evaluation of Environmental, Social and Resettlement Screening Exercises**

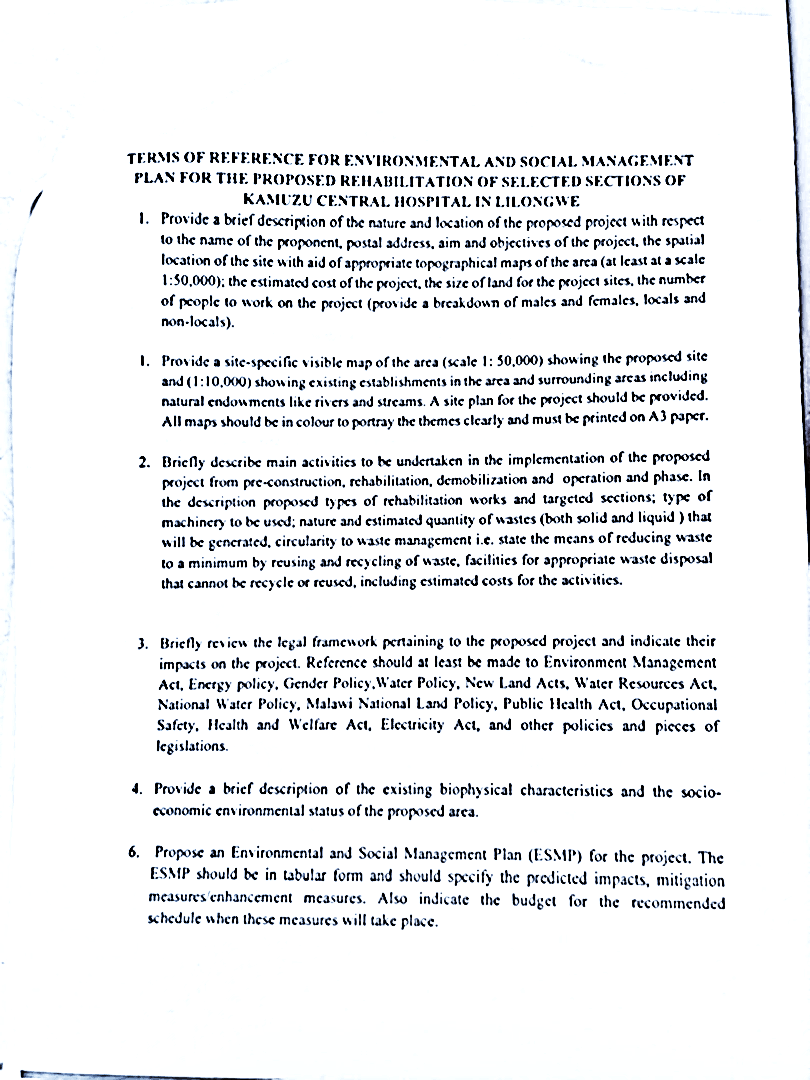
The results of the screening process would be either the proposed sub - projects would be exempted or subjected to further environmental, social and resettlement assessment. The basis of these options is listed in the table below:

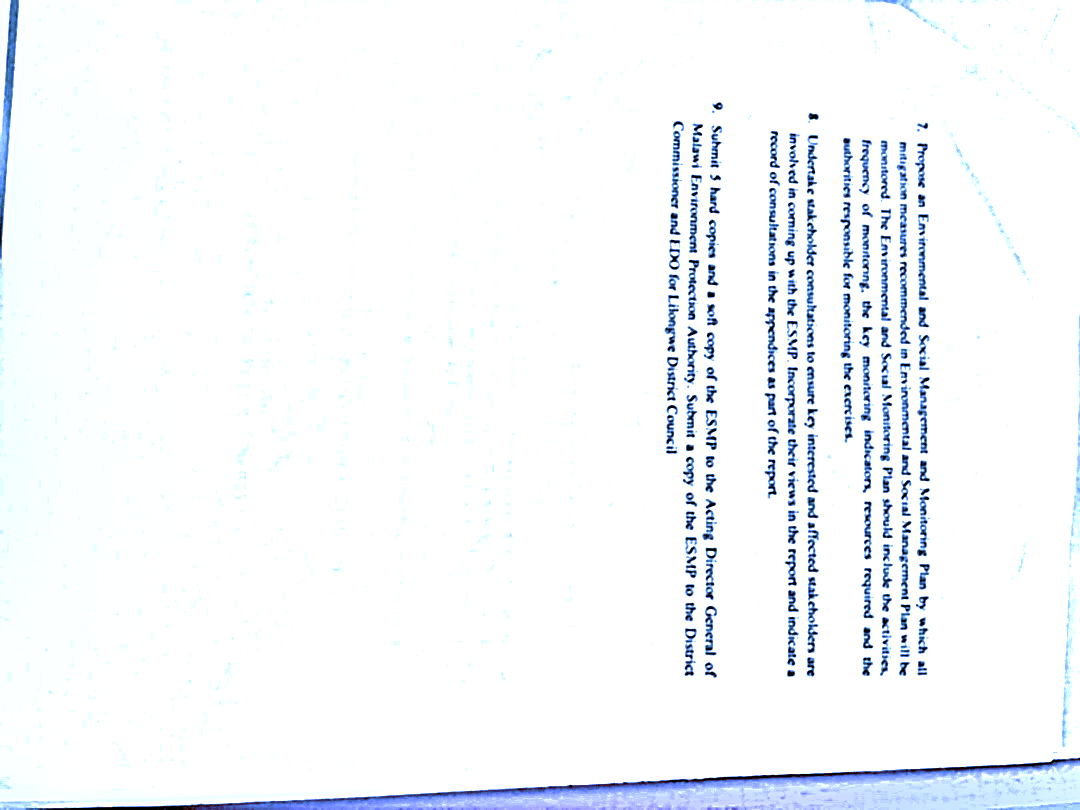
|  |  |  |  |
| --- | --- | --- | --- |
| **Review of Environmental and social Screening** | **Tick** | **Review Resettlement Screening** | **Tick** |
| 1. The project is cleared. No serious impacts. *(When all scores are “No” and Low in form)* |  | 1. The project is cleared. No serious social impact.  *(Where scores are all “No”, “Low-medium” in form)* | √ |
| 2. There is need for further assessment (ESMP/ESIA *(when some score are “Yes, and – Medium to High” in form)* | √ | 2. There is need for resettlement/compensation.  *(When some score are “Yes, High” in form* |  |
|  |  |  |  |
| **Endorsement by Environmental Officer** | | **Endorsement by Director of Planning and Development** | |
| Name: **Mr. Peter Magombo** | | Name: | |
| Signature:  Date: 10-05-2023 | | Signature:  Date: | |

**NOTES:**

# Appendix 1(b): MEPAs Determination on Requirement for an ESMP and ToRs







# Appendix 2: List of Members Consulted

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Name of Stakeholder** | **Designation** | **Gender** | **Contacts** |
| 1 | Dumisani Chiwala, | Chief Economist, Lilongwe District Council, | M | 0999291226, dumisani.chiwala@gmail.com |
| 2 | Boniface Chimwaza | Chief Environmental Officer, Lilongwe District Council, | M | 0991866700 |
| 3 | Ezra Mbendera | Director of Agriculture, Lilongwe District Council, | M | 0993898215 |
| 4 | Tadala Sendeza | Environmental District Officer- Lilongwe District Council, | F | 0888944150, tsendezera2017@gmail.com |
| 5 | Ignatious Kaulendo | Forestry Officer, Lilongwe District Council, | M | 0999493943 |
| 6 | Peter Chiumbuzo | LLDC | M | 0999956771 |
| 7 | Tharson Ngoma | LLDC | M | 0999741069 |
| 8 | Patrick Chikoti | Irrigation Officer, Lilongwe District Council, | M | 0999132538 |
| 9 | Gabriel Misoma | Forestry, Lilongwe District Council, | M | 0999264680 |
| 10 | Victor Chirambo | Environmental Officer, Lilongwe District Council, | M | 0993216910 |
| 11 | Rebecca Badia | Environmental Officer,, Lilongwe District Council, | F | 0991309270 |
| 12 | Veronica Baduya | Education West- Lilongwe District Council, | F | 0994540056 |
| 13 | Agatha Mhango | LLDC | F | 0993694466 |
| 14 | Susan Mkolokosa | EMO- Lilongwe District Council, | F | 0991149896 |
| 15 | Blessings Makhiringa | M and EO, Lilongwe District Council, | M | 0880845358 |
| 16 | Tamanda Chakwera | Environmental Officer,, Lilongwe District Council, | F | 0997240749 |
| 17 | Mirriam Kumwenda | LLDC | F | 0996256306 |
| 18 | Emily Nyondo | LLDC | F | 0997031115 |

# Appendix 3: Suggested Forms for ESMP Reporting, Training and Follow-up

This annex contains three templates to be used in conjunction with monitoring and reporting and follow for ESMP implementation.

1. ESMP reporting form

| **Subproject title** | **Application received (date)** | **Field appraisal undertaken**  **(date if undertaken)** | **Application approved**  **(date if approved)** | **ESMP developed (yes or no)** | **Written warnings of violation of ESMP issued (yes/no)** | **Chance find procedures invoked**  **(yes or no)** |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. ESMP training form

| **Personnel** | **No. of people trained** | **Training received** |
| --- | --- | --- |
| Relevant staffs from different institutions, including from MoH |  |  |
| Safeguard specialists/officers |  |  |
| C-ERHSP Project |  |  |
| District focal points |  |  |
| Hospital staff |  |  |
| Community members etc. |  |  |

1. Follow up on previous recommendations

| **Recommendation** | **Date of recommendation** | **Action taken** | **Recommendation implemented (yes/no)** |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Appendix 4: Environmental and Social Rules for Contractors

The rehabilitation works of selected sections at Kamuzu Central Hospital can have impacts on the hospital environment, staff, patients and their guardians and surrounding community. To ensure compliance with the Environmental and Social (ES) obligations under the Contract, the following rules will be strictly followed by the contractors and /or contractors shall submit Management Strategies and Implementation Plans (MSIPs)in the Bid documents followed by Contractor Environmental and Social Management Plan (CESMP) to help to manage the following key Environmental and Social (ES) risks during the rehabilitation works.

1. **Preparation of Contractor ESMP outlining Management Strategies and Implementation Plans (MSIPs) to help manage key Environmental and Social (ES) risks**

To ensure full consideration of EHS measures full implementation in the project, the Contractor shall prepare for inclusion into CESMP the following plans and update the list as required and from time to time;

* Sexual Exploitation and Abuse (SEA) prevention and response action plan
* Traffic Management Plan to ensure safety of local communities from construction traffic;
* Asbestos management plan
* Emergency response plan for natural hazards and other incidences that might occur e.g. fire
* Solid waste, hazardous waste and waste water management plan
* Other plans deemed necessary

1. **Workers Code of Conduct**

Ensure all workers under my jurisdiction have signed code of conduct with respect to the agreeing to the following:

* Consenting to security background check.
* Carrying out his/her duties competently and diligently.
* Implementing measures to address environmental and social risks related to the Works, including the risks of sexual exploitation, sexual abuse and sexual harassment.
* Maintain a safe working environment including by: ensuring that workplaces, machinery, equipment and processes under each person’s control are safe and without risk to health; wearing required personal protective equipment; using appropriate measures relating to chemical, physical and biological substances and agents; and following applicable emergency operating procedures.
* Treating women, children (persons under the age of 18), persons living with physical disabilities, patients and guardians with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status.
* Not using language or behaviour towards men, women or children, patients and their guardians that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
* Not participating in sexual activity with children, patients and guardians—including grooming or through digital media. Mistaken belief regarding the age of a child and consent from the child is not a defence.
* Not exchanging money, employment, goods, or services for sex, with patients, guardians and community members including sexual favours or other forms of humiliating, degrading or exploitative behaviour;
* Not having sexual interactions with members of the communities surrounding the workplace, and fellow workers that are not agreed to with full consent by all parties involved in the sexual act (see definition of consent above). This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered “non-consensual” within the scope of this Code.
* Attend trainings related to HIV/AIDS, GBV, SEA, occupational health and any other relevant courses on safety as requested by my employer.
* Report to the relevant committee any situation where I may have concerns or suspicions regarding acts of misconduct by a fellow worker, whether in my company or not, or any breaches of this code of conduct provided it is done in good faith.
* Refrain from and report any forms corruption with regards to any activity to do with the project.
* Regarding children under the age of 18, not invite unaccompanied children into my home, unless they are at immediate risk of injury or in physical danger.
* Not sleep close to unsupervised children unless necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
* Refrain from physical punishment or discipline of children.
* Refrain from hiring children for domestic or other labour, 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 labour laws in relation to child labour.
* Refrain from any form of theft for assets and facilities including from surrounding communities.
* Remain in designated working area during working hours.
* Refrain from procession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during workings hours.
* Always wear mandatory PPE during work.
* Channel grievances through the established grievance redress mechanism.
* I understand that the onus is on me to use common sense and avoid actions or behaviours that could be construed as misconduct or breach this code of conduct.

1. **Workplace Safety and Traffic Management implementation**

* Conduct safety education programs to promote awareness of rehabilitation works to workers, hospital staff, patients, guardians and community.
* Ensure free and unobstructed access to emergency services and for fire, police, and ambulances etc.
* Ensure free and unobstructed entry and exits points, providing additional staff training when alternative exits are designated, and maintaining and inspecting emergency escape routes to be used by construction workers in construction areas.
* Construct barriers between the places being refurbished to prevent dust from entering other hospital areas and suppress dust as necessary.
* Direct pedestrian traffic away from works site, provide awareness and signage and as required develop Traffic Management Plan.
* Develop and enforce storage, housekeeping, and debris removal practices that reduce that does not affect operations of the hospital.
* Provide additional fire-fighting equipment and train personnel in its use.
* Respect patient’s rights. Demonstrate respect for patients and staff, including privacy, and security.
* Implement prevention, and control of infections for workers and visitors.
* Conduct risk assessment of susceptible worker’s locations in consultation with the hospital management.
* Control of noise and vibration.

**2. Protection of Water and other Public Services**

* The Contractor shall ensure that no public services are disrupted because of execution of the rehabilitation works. In particular, the Contractor shall:
* Not interfere with supply or abstraction of water for public or private use; and shall not pollute any water resources (including groundwater).
* Not disrupt power supply or any other public or private services including footpaths and walkways without providing alternatives.
* Not discharge or deposit any waste, wastewater or any material into any waters or any grounds except with the permission of the appropriate regulatory authorities.
* Protect all water courses (including ditches, canals, drains and lakes) from pollution, siltation, flooding or erosion because of the execution of the works.
* Assume all responsibility to locate or to confirm the details and location of all utility services on or in the vicinity of the site.
* Assume responsibility for any damage and \or interference caused by him or his agents, directly or indirectly, arising from actions taken or a failure to take action to protect public or private utilities.
* Be responsible for full restoration of any damage caused and for restoration of services. Restoration shall be to the satisfaction of the client/client’s representative. The client/ client’s representative will ensure that any affected third party is content before confirming they are content with the restoration enacted by the contractor.
* Ensure that waste products shall be collected, removed and disposed of at a site approved by the District Council in a manner that will not cause pollution or nuisance. Not dispose of any surplus material on private land unless authorized in writing by the owner(s), authenticated before a notary public, and with previous authorization of the District Council.

**3. Control of Air Pollution implementation**

* Open fires and burning of construction waste shall not be permitted.
* Dust- generating operations shall not be permitted to affect hospital. Where dust generation is inevitable, appropriate measures such as use of water sprays and fencing shields or appropriate covering material shall be employed. All workers shall be protected from dust emissions by providing them with appropriate protective wear.
* All construction machinery, including all vehicles shall be regularly maintained to ensure that no smoke or obnoxious gas is discharged to pollute the air and affect the public or property.

**4. Acquisition of Construction Material**

* Only licensed quarrying, sand mining and brick-making operations and sites shall be used as sources of construction materials.

**5**. **Control of Social Impacts**

* The Contractor shall coordinate with all the neighboring land users and respect their rights to a clean and safe environment. Written agreements with local landowners for temporary use of their sites or property shall be made and sites must be restored to original condition or conditions acceptable to the owner within an agreed time.
* Health and safety of workers shall be protected by providing basic emergency health and first aid facilities and awareness meetings aimed at the prevention of sexually transmitted diseases.
* Awareness meetings shall be conducted as a part of all construction employee orientation programs. Employees shall be provided with condoms for protection from STIs.
* The Contractor shall obtain all necessary written traffic control permissions
* including for use of flagmen, traffic cones or other devices such as barricades and/or lights which he must use to control traffic for safety of pedestrians,
* The Contractor shall neither stockpile nor store any construction materials; not park construction plant or vehicles in walkways, pedestal routes or driveways.
* Stockpiles of material shall be covered with tarpaulins or sprayed with water where these materials pose risks of dust to the public or people’s property.

**7. Noise Control and Regulation**

* The Contractor shall take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the site shall not cause any unnecessary or excessive noise to the public. In addition, the
* Contractor shall operate noisy equipment within government working times unless with prior arrangement and permission from the employer
* Vehicle, plant and equipment exhaust systems shall be maintained in good working order, as recommended by the manufacturers, to ensure that no noise is unnecessarily generated to inconvenience the public.
* Construction works and operations shall be scheduled to coincide with periods when people would least be affected by noise, having due regard for avoiding any noise disturbances to the hospital/ work site neighborhood.
* The contractor shall notify public (likely to be affected by the works) of impending construction operations and specify methods to receive and handle all public complaints.

1. **Environmental Monitoring**

* The Contractor shall be responsible for monitoring all his activities and ensuring that all environmental requirements and the above conditions are always met.
* Contractor shall also facilitate regular environmental, social and health; and safety monitoring by the Client, the Client’s representative or an independent monitor appointed by the Client, or any other national agency with a remit to inspect and monitor construction, environmental, social and health and safety performance.
* The contractor will immediately agree and implement a rectification plan to bring the contractor back into compliance where inspections, audits and monitoring identify issues that are not in compliance with the ESMP as included in the contract.

# Appendix 5: Grievance Redress Management Forms

1. Community Grievance Log & Resolution Form

**SECTION A: GENERAL INFORMATION Form Number …………………..**

District Name: ………………………………. TA……………………………………….……GVH……………….…………..…………

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Project Location/ Catchment Area: | | | Name of Community/ Village: | | | | Reporting Dates: | |
| Name of Complainant | | | Complainant Subcomponent: | | Household Identification: | | | Phone Number,  E-Mail: |
| **SECTION B: DETAILS OF THE GRIEVANCE** | | | | | | | | |
| Ref No. | Date of Grievance | Summary description of Grievance/Complaint | | Follow-up/Investigation | | | Resolution Made | |
| Date | | Person Assigned |
| G1 |  |  | |  | |  |  | |
| G2 |  |  | |  | |  |  | |
| G3 |  |  | |  | |  |  | |

Name of Reporting Officer: ………………………………………………………………….

**SECTION C: SUBMISSION OF GRIEVANCE**

If case is closed, GRM Committee members & complainant to sign below

GRM Committee Chair\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name & Signature of Project Affected Person /Beneficiary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

GRM Committee Secretary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SECTION D: REFERRAL OF CASES**

**Referred to DGRMC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ref No. | Date of Referral | Follow up / Investigation | | Summary of action undertaken |
| Date | Person Assigned |
| G1 |  |  | |  |
| G2 |  |  | |  |
| G3 |  |  | |  |

RECEIPT: SUBMISSION OF GRM Form number ………..

|  |  |
| --- | --- |
| Complaint: | |
| Household ID: | TA: |
| Districts: | Program: |
| Name of Complainant: | Reporting officer: |
| Case: - Closed { } - Referred { } | Signature of complainant: |

2. Workers’ Grievance Log & Resolution Form

**SECTION A: GENERAL INFORMATION Form Number …………………..**

District Name: ………………………………. TA……………………………………….……GVH……………….…………..…………

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name of Project Location/ Catchment Area: | | | Name of Community/ Village: | | | | Reporting Dates: | |
| Name of Complainant | | | Complainant Subcomponent: | | Household Identification: | | | Phone Number,  E-Mail: |
| **SECTION B: DETAILS OF THE GRIEVANCE** | | | | | | | | |
| Ref No. | Date of Grievance | Summary description of Grievance/Complaint | | Follow-up/Investigation | | | Resolution Made | |
| Date | | Person Assigned |
| G1 |  |  | |  | |  |  | |
| G2 |  |  | |  | |  |  | |
| G3 |  |  | |  | |  |  | |

Name of Reporting Officer: ………………………………………………………………….

**SECTION C: SUBMISSION OF GRIEVANCE**

If case is closed, GRM Committee members & complainant to sign below

WGRM Committee Chair\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name & Signature of Project Affected Person /Beneficiary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WGRM Committee Secretary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SECTION D: REFERRAL OF CASES**

**Referred to DGRMC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ref No. | Date of Referral | Follow up / Investigation | | Summary of action undertaken |
| Date | Person Assigned |
| G1 |  |  | |  |
| G2 |  |  | |  |
| G3 |  |  | |  |

RECEIPT: SUBMISSION OF GRM Form number ………..

|  |  |
| --- | --- |
| Complaint: | |
| PAP ID: | TA: |
| Districts: | Program: |
| Name of Complainant: | Reporting officer: |
| Case: - Closed { } - Referred { } | Signature of complainant: |

# Appendix 6: Resource Efficiency Measures (Use of Water)

**Purpose of Resource Efficiency measures (Use Water)**

These measures are project-specific and outlines actions focusing on the use of water during rehabilitation works. The purpose of these resource efficiency measures is to significantly contribute to sustainability and reduce environmental and social impacts due to use of water during rehabilitation works of the project. The measures will have to be implemented basing on the potential for the project to increase demand of water, and thereby increasing pressure on the availability of the resource at Kamuzu Central hospital.

**Scope of these Resource Efficiency measures (Use Water)**

These measures shall be applied during rehabilitation works of selected sections at Kamuzu Central hospital. These measures are applicable to works conducted by the contractor, including all works requiring supply of water rehabilitation works. This is due to the potential of rehabilitation activities to increase demand of piped water which KCH is supplied with, and the project’s construction activities may likely rely upon. The measures outline the considerations, actions, roles and responsibilities with respect to use of water during the works

**Efficiency measures (Use of Water)**

During rehabilitation works, upon the contractor requiring water for use in various activities and all water works, the following measures shall be taken:

**Exploring other sources of water for use in implementing the rehabilitation works**

Since the use of water supplied by LWB is confirmed for rehabilitation activities, the contractor therefore shall be responsible for striking an agreement with hospital management on the amount of water likely to be used and the payment arrangements of the bill. This agreement shall be binding and certification of full payment of bill by the Hospital will be the determining factor for the contractor to receive their final payment from the project after completion of works.

Other sources of water for rehabilitation works can also be considered by the contractor are as follows:

* Extracting water from surface water sources from the nearby river(s) within the vicinity
* Other water management options to conserve water resources are also suggested as follows.

1. Utilize rainwater harvesting systems to capture and store rainwater for rehabilitation works
2. Implement water-saving technologies such as low-flow faucets, toilets, and showerheads in sanitary rooms.
3. Implement leak detection and repair programs to promptly address any water leaks in infrastructure or equipment.
4. Encourage water conservation practices among workers through sensitizations.

# Appendix 7: Incidents Reporting Form

**FOR BANK AND BORROWER USE**

**Part B: To be completed by Borrower within 24 hours**

|  |
| --- |
| **B1: Incident Details** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date of Incident:** | **Time:** | | **Date Reported to PIU:** | | **Date Reported to WB:** |
| **Reported to PIU by**: | | **Reported to WB by**: | | **Notification Type**: Email/’phone call/media notice/other | |
| **Full Name of Main Contractor**: | | | **Full Name of Subcontractor**: | | |

|  |
| --- |
| **B2**: **Type of incident (please check all that apply)**1 |
| Fatality  Lost Time Injury  Displacement Without Due Process  Child Labor Acts of Violence/Protest Disease Outbreaks  Forced Labor  Unexpected Impacts on heritage resources  Unexpected impacts on biodiversity resources  Environmental pollution incident  Dam failure  Other |

1See Annex 1 for definitions

|  |
| --- |
| **B3: Description/Narrative of Incident** |
| *Please replace text in italics with brief description, noting for example:*   1. *What is the incident?* 2. *What were the conditions or circumstances under which the incident occurred (if known)?* 3. *Are the basic facts of the incident clear and uncontested, or are there conflicting versions? What are those versions?* 4. *Is the incident still ongoing or is it contained?* 5. *Have any relevant authorities been informed?* |

|  |  |  |  |
| --- | --- | --- | --- |
| **B4: Actions taken to contain the incident** | | | |
| **Short Description of Action** | **Responsible Party** | **Expected Date** | **Status** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **For incidents involving a contractor:** Have the works been suspended (for example, under GCC8.9 of Works Contract)? Yes ☐; No ☐; Trading name of Contractor (if different from B1):  Please attach a copy of the instruction suspending the works. | | | |

|  |
| --- |
| **B5: What support has been provided to affected people** |
|  |

**Annex 1: Incident Types**

The following are incident types to be reported using the environmental and social incident response process:

**Fatality**: Death of a person(s) that occurs within one year of an accident/incident, including from occupational disease/illness (e.g., from exposure to chemicals/toxins).

**Lost Time Injury**: Injury or occupational disease/illness (e.g., from exposure to chemicals/toxins) that results in a worker requiring 3 or more days off work, or an injury or release of substance (e.g., chemicals/toxins) that results in a member of the community needing medical treatment.

**Acts of Violence/Protest**: Any intentional use of physical force, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, deprivation to workers or project beneficiaries, or negatively affects the safe operation of a project worksite.

**Disease Outbreaks**: The occurrence of a disease more than normal expectancy of number of cases. Disease may be communicable or may be the result of unknown etiology.

**Displacement Without Due Process:** The permanent or temporary displacement against the will of individuals, families, and/or communities from the homes and/or land which they occupy without the provision of, and access to, appropriate forms of legal and other protection and/or in a manner that does not comply with an approved resettlement action plan.

**Child Labor:** An incident of child labor occurs: (i) when a child under the age of 14 (or a higher age for employment specified by national law) is employed or engaged in connection with a project, and/or (ii) when a child over the minimum age specified in (i) and under the age of 18 is employed or engaged in connection with a project in a manner that is likely to be hazardous or interfere with the child’s education or be harmful to the child’s health or physical, mental, spiritual, moral or social development.

**Forced Labor**: An incident of forced labor occurs when any work or service not voluntarily performed is exacted from an individual under threat of force or penalty in connection with a project, including any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor-contracting arrangements. This also includes incidents when trafficked persons are employed in connection with a project.

**Environmental pollution incident**: Exceedances of emission standards to land, water, or air (e.g., from chemicals/toxins) that have persisted for more than 24 hours or have resulted in harm to the environment.

**Other**: Any other incident or accident that may have a significant adverse effect on the environment, the affected communities, the public, or the workers, irrespective of whether harm had occurred on that occasion. Any repeated non-compliance or recurrent minor incidents which suggest systematic failures that the task team deems needing the attention of Bank management.

# **Appendix 8**: Asbestos Containing Material Management Plan

**Overview**

The 2024 asbestos assessment report by Consulting Occupational Hygienist cc. (COH) analyzed and identified presence of Asbestos in Ward 4A & 4B – Panel, Radiology – Floor tile and Eye clinic/ darkroom tile at the Kamuzu Central Hospital as follows;

|  |  |  |
| --- | --- | --- |
| **Sample** | **Description** | **Results** |
| 16760 / 1 | Ward 4A & 4B – Panel | Tested positive for the presence of Chrysotile (White asbestos) |
| 16760 / 2 | Radiology – Floor tile | Tested positive for the presence of Amosite (Brown asbestos) |

This asbestos management plan sets out the arrangements to manage the risks from the demolition of the existing panels and floor tiles at the KCHs Radiology department and Ward 4 A and 4B that tested positive for presence of blue asbestos and white asbestos respectively. No work can start on the demolition of these structures or their parts without an appropriate assessment for the presence of asbestos.

**Roles and Responsibilities**

* KCH project Management Team and MC-ERHSP PIU will be responsible for development of the ACM Management Plan prior to and included in the request for bids. This is to ensure contractors can properly plan and cost for these works.
* The contractor will be responsible for the adoption of ACM Management Plan and include it as part of their Contractor’s –ESMP including costing its execution in the Bid documents.
* KCH project Management Team and MC-ERHSP PIU will be responsible for supervision and monitoring of the implementation of the ACM Management Plan.
* KCH project Management Team and MC-ERHSP PIU will ensure that there are trainings in the management of the ACM Plan; and
* KCH project Management Team have the ultimate authority to ensure that ACMs are managed effectively.

**Asbestos management control arrangements**

* KCH project Management Team and MC-ERHSP PIU shall develop a detailed ACM Management Plan prior to and included in the request for bids and will be included in the Contractors-ESMP.
* KCH project Management Team and MC-ERHSP PIU will develop a removal plan before removal of ACM that will be approved by the Malawi Environment Protection Authority (MEPA) in line with the Environment Management (Chemicals and Toxic Substances Management) Regulations).
* Removal of any ACM will require a permit-to-work by MEPA. Any work on the ACMs must be done by a competent and approved ACM Specialist. The contractor shall undertake training of all personnel involved in the removal of ACM.
* ACMs should be labelled clearly with the asbestos warning sign or some other warning system (for example color coding) can be used; and
* As part of the ACM plan, ACM may be covered in plastic sheeting before being buried at a safe site identified in consultation with MEPA, KCH project Management Team and the Lilongwe City Council and this will have to be costed by the contractor as part of the Bid.
* The KCH administration will undertake a comprehensive audit of ACM and customize and implement this ACM plan during operation phase. The principles will be applied to any rehabilitation, refurbishment and demolition of any section of the hospital.

**Table 2- ACM Management, Removal and Disposal Plan**

|  |  |  |
| --- | --- | --- |
| **Activities** | **Responsibility** | **Specific Management Measure** |
| Planning for Asbestos Containing materials removal | KCH project Management Team, MC-ERHSP PIU Contractor | * Undertaking an asbestos audit prior to/at the beginning of the rehabilitation. This was already undertaken in all proposed sections earmarked for rehabilitation. It was found that there is white and brown asbestos in panels of ward 4A and 4B as well as brown asbestos in the floor tiles of the radiology building. * Development of a detailed ACM Management Plan to be included as part of compliance Contractors-ESMP and costed in the Bid. * The Abatement Plan MUST include all the necessary OHS worker measures AND all the measures to ensure proper contaminant during removal. It should also include monitoring. * The plan should also include measures for contractor to take during any demolition or construction in terms of identification of other areas that may contain ACM but were not identified during the audit * KCH project Management Team and MC-ERHSP PIU will before removal of ACM, develop a removal plan including risk assessment for the removal, that will be approved by MEPA in line with the Environment Management (Chemicals and Toxic Substances Management) Regulations. * Removal of any ACM will require a permit-to-work by MEPA. Any work on the ACMs must be done by a competent and approved ACM Specialist. Training shall be undertaken to all personnel involved in the removal of ACM and this will be costed in the bid document by the contractor |
| Removal of ACM | Contractor | * Removal and disposal of ACM in buildings should only be performed by specially trained personnel, following, internationally recognized procedures. * When possible, the asbestos will be appropriately contained and sealed to minimize exposure. * The asbestos will be treated with a wetting agent prior to removal to minimize asbestos dust. * Provide adequate Personal Protective Equipment to all personnel handling asbestos, including respirators and disposable clothing. * Protection of walls, floors, and other surfaces with plastic sheeting. * Removing the ACM using wet methods, and promptly placing the material in impermeable containers. * Final clean-up with special vacuums. |
| Transportation and Storage of ACM | Contractor, KCH, MEPA | * If asbestos material is to be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. * Transporting ACM in leak-tight containers to a secure dumpsite operated in a manner that precludes air and water contamination that could result from ruptured containers. * ACMs should be labelled clearly with the asbestos warning sign, or some other warning system (for example colour coding) can be used. |
| Disposal of ACM | Contractor, KCH, MEPA | * Disposal of the removed ACM and contaminated materials in an approved dumpsite * ACM may be covered in plastic sheeting before being disposed of at a safe site identified in consultation with MEPA, KCH and the Lilongwe City Council. * Provide adequate protection to personnel handling asbestos, including respirators and disposable clothing. * The removed asbestos will not be reused. |
| ACM activities Monitoring | PIU Engineer, KCH, MEPA | * The PIU engineer and KCH through competent personnel shall supervise the works with ACM. * An ACM Specialist shall be hired by the contractor to assure application of proper protective measures in work with ACM in existing structures. * Monitoring as the work progresses, as well as final air sampling for clearance, by an entity independent of the contractor removing the ACM. |

# **Appendix 9: Hospital Services and Patients Displacement Mitigation Plan due to Rehabilitation Project**

**Objective of the plan:**

Rehabilitation works proposed for the Kamuzu Central Hospital will target building(s) and/or spaces that already provides hospital services, used by hospital staff and occupied by patients and guardians. The rehabilitation works may therefore displace and disrupt these services and spaces including impacting on the continuity of service delivery and safety of the staff, patients and guardians. To ensure the continuity of care and minimize the disruption to hospital services during the rehabilitation project while prioritizing patient safety, quality of care, and staff efficiency the following measures are proposed including responsible sectors to execute the plan. Thus, this plan is prepared and should be included in the construction contract bid package, as they will clearly effect the construction works (methods, timing, etc.) and hence the cost

| **S/N** | **Activities** | **Responsibility** | | **Specific Management Measure** | **Timing of implementation of measures** |
| --- | --- | --- | --- | --- | --- |
|  |  | **Plan execution** | **Plan Monitoring** |  |  |
| 1 | **Assessment and Pre-Planning Phase** | | | |  |
| 1.1 | Fact finding for plan execution | Hospital Management, KCH project Management Team and Contractor | MC-ERHSP PIU | * Identify all services that will be affected by the rehabilitation project * Determine space requirements for temporarily displaced departments and services * Estimate the volume of patients to be affected, including critical cases, high-risk patients, and how ongoing treatments will be administered. | * At planning stage |
| 1.2 | Prioritization of Critical Services | Hospital Management, KCH project Management Team and Contractor | MC-ERHSP PIU | * Non-disruptive Services: Identify services that should have minimal disturbances and prioritize to maintain these even during the rehabilitation works (e.g., radiology services for critical patients). Radiology services will at one point be outsourced to nearby hospitals (Bwaila Hospital) by transporting patients alongside accompanying personnel to ensure that they receive timely service. * Phased Construction: Organize the project in phases to avoid the total shutdown of key departments and services. * Timeline Management: Create a detailed timeline with milestones to ensure the project stays on track and disruptions are minimized. | * At planning stage to immediately before construction works of a certain section |
| 1.3 | Stakeholder Engagement | KCH project Management Team and Contractor | MC-ERHSP PIU | * Form a Taskforce: Include hospital leadership, department heads, construction managers, and patients/ guardians in the planning process to understand their needs and concerns and to manage the displacement plan. * Regulatory Compliance: Ensure all plans meet local health regulations, especially concerning patient safety and facility standards. | * At Planning stage |
| 2 | **Temporary Relocation of Services** | | | |  |
| 2.1 | Identify Temporary Care Locations and Maintaining essential services | Hospital Management | MC-ERHSP PIU, Ministry of Health | * Internal Relocation: Maximize available space within the hospital. Convert conference rooms, admin areas, or less critical care spaces into temporary treatment zones/ spaces for displaced services. * External Partnerships: Establish agreements with neighboring Departments of the hospitals which will not be affected by the works or clinics, to temporarily handle services that can't be accommodated in the rehabilitated sites. * Emergency Services: Maintain full capacity for emergency services cases by relocating emergency services to an easily accessible area. * Diagnostic and Imaging: Ensure diagnostic facilities (CT, MRI, X-rays) are available through partnerships with nearby facilities. * Move patients to nearby hospitals to access radiology and other services that need specialized rooms. * Undertake rehabilitation in a phased manner so that patients and guardians have access to critical services including toilets at all times. | * At planning stage all the way to construction |
| 3 | **Communication Strategy** | | | |  |
| 3.1 | Patient and Family Notification | Hospital Management, KCH project Management Team | MC-ERHSP PIU | * Advance Communication: Notify patients and their families well ahead of any disruptions. This includes signage, verbal notifications, hospital websites, and social media updates. * Detailed Information: Provide details on service relocations, expected disruptions, alternative locations, and how to access care during the construction period. | * At planning, throughout construction phase and before operation |
| 3.2 | Staff Communication | Hospital Management, KCH project Management Team | MC-ERHSP PIU | * Ensure staff are fully aware of the temporary adjustments, emergency protocols, and patient care guidelines. Regular briefings should be held to address any concerns. * Feedback Mechanism: Implement a system for staff to provide feedback and raise concerns, allowing for quick adjustments to the displacement plan if needed. | * At planning, throughout construction phase and before operation |
| 3.3 | Patient Flow and Navigation | Contractor, KCH project Management Team | Hospital Management, | * On-Site Signage: Ensure clear and visible signage around the hospital for navigating to temporary units. * Provide transport accompanying staff for patients that to access services such as radiology at nearby facilities | * Throughout construction phase |
| 4 | **Phased Rehabilitation works and Disruption Minimization** | | | |  |
| 4.1 | Rehabilitation works Phasing | Contractor, Hospital Management, KCH project Management Team | MC-ERHSP PIU | * Service and displacement Staggering: Schedule rehabilitation works in stages to ensure only a portion of services are affected at any given time, maintaining the hospital’s operational capacity. * Rehabilitation of facilities such as toilets to done one at a time so that patients and guardians are able to use other facilities. Where this is not possible mobile toilets will be provided. | * Throughout construction phase |
| 4.2 | Infection Control | Contractor, | MC-ERHSP PIU, Hospital Management | * Physical Barriers: Set up physical barriers between construction zones and active hospital areas to reduce dust. * Infection Control: Work closely with infection control teams to ensure that construction doesn’t increase the risk of infections. * Air quality control systems should be in place to protect patients from contaminants. | * Before and Throughout construction phase |
| 4.3 | Noise Reduction | Contractor | MC-ERHSP PIU, Hospital Management | * Conduct a baseline noise survey before the start of construction to understand the existing noise levels around the hospital. * Set specific noise level limits (e.g., maximum permissible decibels) for construction activities based on local regulations and international standards, tailored to the sensitive receptors ar the hospital (e.g., WHO, ISO 9613). * Limit noisy construction activities to certain hours of the day i.e. 9:00 AM and 4:00 PM for jackhammering and heavy machinery use * Use of Low-Noise Equipment * Use of Modern and Well-Maintained Equipment: with noise-reducing features like mufflers and silencers. * Set up physical barriers that are high enough between construction zones and active hospital areas to reduce noise. * Install real-time noise monitoring systems to measure noise levels throughout the construction period. * Provide daily noise monitoring reports to relevant authorities and hospital management, detailing any exceedances and measures taken | * Before and throughout construction phase |
| 5 | **Coordination with External Partners** | | | |  |
| 5.1 | Formal Agreements | Hospital management, | Ministry of Health | a) Referral Networks: Establish formal agreements with nearby clinics, or other surrounding healthcare facilities to manage patient overflow, especially for specialized care and emergencies.  b) Shared Resources: Coordinate resource sharing (e.g., diagnostic equipment) with partners to ensure smooth patient care. | At planning and throughout construction phase |
| 6 | **Monitoring, Adjustment, and Contingency Plans** | | | |  |
| 6.1 | Monitoring Service Delivery | Hospital Management, | Ministry of Health | a) Patient Flow: Continuously monitor patient flow, wait times, and treatment delays in temporary locations. Adjust staff or facilities as necessary to address bottlenecks.  b) Quality Assurance: Conduct regular reviews to ensure the quality of care remains uncompromised despite the rehabilitation works and changes. | Throughout construction phase |
| 6.2 | Contingency Planning | Hospital Management | Ministry of Health | a) Plan for Delays: Prepare for possible delays in construction or other unexpected disruptions. Keep contingency spaces and resources on standby. | At planning phase |
| 7 | **Post-Construction Transition Plan** | | | |  |
| 7.1 | Reopening of Services | Hospital Management, KCH project Management Team | Ministry of Health | a) Patient Notification: Inform patients once services return to their original locations, using clear communication channels.  b) Adjustment of Operations: Make any final adjustments to ensure smooth operations once rehabilitation is complete. | Before and during operation phase |

**Conclusion**

The Kamuzu Central hospital rehabilitation project requires meticulous planning and flexibility to ensure that patient care continues uninterrupted and that essential services are accessible. By coordinating all relevant stakeholders, clearly communicating with patients and staff, and continuously monitoring the process, the hospital and rehabilitation works can minimize disruption and maintain high standards of care throughout the rehabilitation period.

# **Appendix 10: Monitoring Plan for the Operation & Maintenance (O&M) Environmental, Health, and Safety (EHS) Management System for Kamuzu Central Hospital Rehabilitation Project**

**Introduction**

A comprehensive monitoring plan is essential to ensure the Environmental, Health, and Safety (EHS) standards are upheld throughout the operational phase of the Kamuzu Central Hospital Rehabilitation Project. This monitoring plan will help identify potential issues related to environmental impacts, public health, and worker safety and provide guidelines for corrective actions. The following monitoring aspects and procedures are crucial:

**1. Water Quality and Wastewater Monitoring**

**Objective**: Ensure that water used at the hospital during rehabilitation works and discharged into the environment meets the required quality standards to protect human health and the environment.

**Monitoring Aspects:**

* Discharge Water Quality (from construction effluent and operation phase)

**Parameters to Monitor:**

* pH Level
* Total Suspended Solids (TSS)
* Chemical Oxygen Demand (COD)
* Biological Oxygen Demand (BOD)
* Ammonia (NH₃)
* Nitrates (NO₃)
* Heavy Metals (Lead, Mercury, Cadmium)
* Coliform Bacteria (E. Coli)
* Turbidity

**Monitoring Frequency:**

* Assess the quality and quantity of effluent discharged into the Lilongwe water Board sewer system and ascertain that LWB is meeting requirements of the ESH guidelines for Health care wastes and Malawi government.
* **Water Discharge (weekly)** for all short-term contaminants except heavy metals
* **Quarterly**: For heavy metals and other long-term contaminants.

**Method of Monitoring:**

* Use of **portable water testing kits** or **laboratory testing** for more complex analysis.
* **Routine sampling** at designated points within the hospital (inlet and discharge).
* Demand water quality of sewer discharge into the environment from LWB to ensure they meet ESH guideline for Health Care Facilities at least monthly.

**2. Solid Waste Generation Monitoring**

**Objective**: Tracks manage and keep records of the generation of solid waste to ensure compliance with national waste management regulations and hospital-specific waste handling procedures.

**Monitoring Aspects:**

* Total Solid Waste Generation
* Waste Segregation Efficiency
* Waste Disposal Practices and where waste is disposed

**Parameters to Monitor:**

* Volume of Waste generated (measured by weight or volume)
* Waste Segregation Ratio (percentage of waste segregated into categories: recyclable, non-recyclable, hazardous, organic)
* Types of Waste (general, recyclables, hazardous, medical waste)

**Monitoring Frequency:**

* Weekly: Total waste generated.
* Monthly: Segregation efficiency.
* Quarterly: Review of waste disposal records and compliance with disposal guidelines.

**Method of Monitoring:**

* Manual tracking via waste logs or electronic records.
* Waste audits to track segregation and recycling rates.
* Monthly waste weighing at designated collection points.

**3. Hazardous Waste Generation Monitoring**

**Objective**: Monitor the generation and proper handling of **hazardous waste** to prevent its associated risks and ensure health safety.

**Monitoring Aspects:**

* Hazardous Waste Generation
* Handling & Storage Compliance
* Disposal Methods

**Parameters to Monitor:**

* Weight/Volume of Medical Waste (categorized into infectious, sharps, pharmaceutical, and non-infectious)
* Segregation Accuracy (separate infectious, sharps, and pharmaceutical waste)
* Proper Labeling and Packaging Compliance

**Monitoring Frequency:**

* Daily: Monitoring collection bins for medical waste segregation and volume.
* Weekly: Inspection of hazardous waste storage areas for safety and compliance.
* Monthly: Review of disposal records and disposal.

**Method of Monitoring:**

* Manual tracking using waste management records.
* Regular inspections of hazardous waste storage and disposal systems.
* Documentation of incinerator/ waste collection by competent authority logs and disposal receipts.

**4. Emissions Monitoring**

**Objective**: Ensure proper project implementation and monitor emissions to ensure compliance with health and environmental standards.

**Monitoring Aspects:**

* Emissions Monitoring

**Parameters to Monitor:**

* Emissions (e.g., CO, NOₓ, SO₂, particulate matter, dioxins/furans) from the incinerator.
* Dust and Residual Ash (volume and handling and final disposal)

**Monitoring Frequency:**

* Monthly: Emissions testing for gases and particulate matter.

**Method of Monitoring:**

* Continuous monitoring for emissions (if available).
* Laboratory testing for dioxins/furans and other pollutants at exhaust outlets.

**5. Air Quality Monitoring**

**Objective**: Ensure that air quality within the hospital and surrounding areas meets regulatory and health standards, particularly to reduce exposure to harmful emissions.

**Monitoring Aspects:**

* **Indoor Air Quality** (hospital zones such as patient rooms, operating rooms)
* **Ambient Air Quality** (surrounding area)

**Parameters to Monitor:**

* Particulate Matter (PM10, PM2.5)
* Carbon Monoxide (CO)
* Nitrogen Dioxide (NO₂)
* Sulfur Dioxide (SO₂)
* Ozone (O₃)

**Monitoring Frequency:**

* **Weekly**: For indoor air quality in patient rooms and other sensitive areas.
* **Monthly**: For ambient air quality surrounding the hospital.

**Method of Monitoring:**

* **Air Quality Monitors** (fixed or portable for particulate matter and gases).
* **Grab sampling** and analysis by accredited laboratories.

**6. Worker Occupational Health & Safety (OHS) Monitoring**

**Objective**: Ensure worker health and safety by monitoring workplace conditions, particularly during the rehabilitation, operation, and maintenance phases.

**Monitoring Aspects:**

* Workplace Hazard Identification
* Personal Protective Equipment (PPE) Compliance
* Occupational Health Monitoring

**Parameters to Monitor:**

* Noise Levels (particularly in high-risk areas like the incinerator or construction zones)
* Airborne Contaminants (e.g., dust, vapors)
* Exposure to Hazardous Substances
* Workplace Accidents & Injuries

**Monitoring Frequency:**

* Daily: Workplace inspections to ensure adherence to OHS guidelines.
* Monthly: Review of accident and injury reports.

**Method of Monitoring:**

* Workplace safety audits and inspections.
* Noise level measurements using sound meters.
* Health and safety training sessions and PPE checks.

**Conclusion and Reporting**

* **Data Recording and Reporting**: All data from the monitoring activities must be recorded and reports should be submitted to SE monthly or quarterly.
* **Corrective Action**: Based on monitoring results, corrective actions should be implemented if any EHS standards are not met. The monitoring results will also serve as the basis for continuous improvement initiatives.
* **Stakeholder Engagement**: Regularly update stakeholders, including regulatory bodies, hospital staff, and local communities, on the environmental and health performance.

# **Appendix 11: Floor Plan Designs for the targeted Departments for Rehabilitation works at KCH**

