

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT

**FOR
THE PROPOSED CONSTRUCTION OF BUNGOMA
LEVEL 6 TEACHING & REFERRAL HOSPITAL**

AT

GPS Coordinates: 0.728608°N, 34.579199°E

Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County.

APRIL 2026

Proponent

Ministry of Health State Department of Medical Services

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Nairobi KENYA

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DOCUMENT AUTHENTICATION

This Environmental Social Impact Assessment (ESIA) Report has been prepared and is submitted to National Environment Management Authority (NEMA), in conformity with the requirement of Environmental Management and Coordination (Amendment) Act, 2015 and the Environmental Impact assessment and audit (Amendment) Regulations, 2019. We, the undersigned certify that to the best of our knowledge and belief, this report is correct and true reflection of the findings on the anticipated environmental impacts of the proposed residential development.

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Dr. Hosam Ajuck - Project Representative / Project Manager, Ministry of Health, State Department of Medical Services (Project Proponent).

Micah Nyairo - County Public Health Representative, Bungoma County (Proponent representative at public participation meetings).

The individuals named above (evidenced in the stakeholder engagement records and document authentication page) held direct engagement or proponent-representative roles during the ESIA process; the full multi-disciplinary technical team responsible for the overall feasibility study and safeguard instruments, including Mr. Edgar Eredi as Environmental Specialist, is set out in the table above.

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AfDB	African Development Bank
CSR	Corporate Social Responsibility
DMP	Dust Management Plan
EA	Environmental Audit
EMCA	Environmental Management and Coordination Act
EPRP	Emergency Preparedness and Response Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Safeguards
GBV/SEA	Gender-Based Violence / Sexual Exploitation and Abuse
GIIP	Good International Industry Practice
GRM	Grievance Redress Mechanism
HCWM	Health Care Waste Management
IFC	International Finance Corporation
IPC	Infection Prevention and Control and Waste Management Plan
KPLC	Kenya Power and Lighting Company
MOH	Ministry of Health
MWMP	Medical Waste Management Plan
NEMA	National Environment Management Authority
NMP	Noise Management Plan
OHMP	Occupational Hazards Management Plan
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
SEP	Stakeholder Engagement Plan
SRLTRH	South Rift Level VI Teaching and Referral Hospital
TMP	Traffic Management Plan
TRH	Teaching and Referral Hospital
WHO	World Health Organization
WMP	Waste Management Plan

EXECUTIVE SUMMARY

The Government of Kenya (GoK) has received financing from the African Development Bank (AfDB) to support the development of healthcare infrastructure aimed at improving access to quality and specialized medical services across the country. The main objective of this initiative is to enhance the availability, accessibility, and efficiency of healthcare services, particularly in underserved regions.

Bungoma County has been identified as one of the priority areas to benefit from this programme through the proposed construction of the Bungoma Level 6 Hospital. The project is designed to upgrade healthcare capacity in the region by providing advanced medical services, reducing referrals to distant national hospitals, and strengthening emergency response and specialized care.

The Project Executing Agency (PEA) will be the Ministry of Health Kenya in collaboration with the Bungoma County Government. These institutions are responsible for the planning, development, and management of healthcare infrastructure and services within their respective jurisdictions. The project will also involve coordination with relevant stakeholders to ensure effective implementation, sustainability, and alignment with national health policies, including the realization of Universal Health Coverage (UHC).

Proposed Project

The Ministry of Health (MoH) of Kenya through African Development Bank is proposing to construct a 700-bed Level 6 Teaching and Referral Hospital at Kabuchai Sub County, Bungoma. This is intended to improve modern health technologies and systems to improve efficiency, service delivery, and patient outcomes. The project aligns with national development priorities, particularly Kenya's Universal Health Coverage (UHC) agenda under Vision 2030, as well as county and regional strategies aimed at strengthening tertiary healthcare systems, reducing disease burden, and improving health outcomes.

Bungoma Town is strategically located along key regional transport corridors connecting Kenya to Uganda and the greater East African region, making it an important economic and logistical hub. The county has experienced significant population growth, with a population exceeding 1.7 million residents and a large catchment population from surrounding counties. Despite this, access to specialized and super specialized healthcare services remains limited.

Project Description and Associated Facilities

The project entails site preparation and civil works; construction of the hospital buildings and support infrastructure; installation of medical equipment and ICT systems; and staffing and commissioning of comprehensive healthcare services, on an approximately 50-acre site on Plot L.R No. Bokoli/Chwele 2458 (approximately 20 acres transferred from the Kenya Medical Training College (KMTC) to the project, and the remaining approximately 30 acres in the process of being transferred, consistent with the FSR). The facility will be organised into functional units – accident and emergency, outpatient, inpatient wards, operating theatres, diagnostics and imaging, laboratories, pharmacy, teaching and administration – with an estimated capacity of 700 beds.

Associated and support facilities will include: an on-site wastewater treatment plant (subject to an Effluent Discharge Licence); a modern NEMA-licensed microwave-based non-burn healthcare waste treatment installation serving the hospital's own waste (estimated generation of approximately 700-980 kg/day general and 140-210 kg/day infectious waste); water storage tanks of at least 130,000 litres supplemented by rainwater harvesting; standby power generation; internal access roads, parking and drainage; and utility connections.

Construction will engage an average workforce of about 200 workers, with materials sourced

only from NEMA-licensed quarries. Detailed siting of construction-stage support facilities (contractor's camp, laydown and spoil areas) will be fixed at concept-design stage and controlled through the Contractor's Environmental and Social Management Plan (C-ESMP).

Design Basis — Commissioned Bed Capacity

The commissioned bed complement of the Bungoma County Teaching and Referral Hospital (BCTRH) is 700 beds. This single figure is used throughout this ESIA, the Environmental and Social Management Plan, the Medical Waste Management Plan, the Emergency Preparedness and Response Plan and the Stakeholder Engagement Plan. It is the figure confirmed by the approved bed schedule, the Zone 3 Area Schedule (20260713_BCTRH_Area_Schedule_Functional_Disposition), the Clinical Service Plan (Rev 2) and the Policy Brief of 13 July 2026. No scaling relationship is applied and no alternative bed figure is carried anywhere in this report.

The earlier "1,800-bed" description that appeared in previous drafts was an error: that figure did not correspond to any approved schedule for BCTRH. It has been withdrawn in full, and all figures previously derived from it have been recalculated. For the avoidance of doubt, the companion South Rift (Kericho) ESIA carries a commissioned complement of 1,000 beds; the two facilities are separate and no figure is shared or scaled between them.

Healthcare waste quantities follow directly from the 700-bed basis. Applying WHO unit generation rates for Level VI teaching and referral hospitals at design occupancy gives approximately 700-980 kg/day of general (non-hazardous) waste and approximately 140-210 kg/day of infectious and clinical waste, together with sharps, pharmaceutical and chemical streams as set out in Section 2.3.1 and in the Medical Waste Management Plan at Appendix 9. The derivation is stated in full in the MWMP and is reproduced in the waste quantification methodology section of that Plan.

Parameter	Value	Source of the figure
Commissioned beds	700	Approved bed schedule; Zone 3 Area Schedule; Clinical Service Plan Rev 2; Policy Brief 13 July 2026
General (non-hazardous) waste	≈ 700-980 kg/day	WHO unit rates applied to 700 beds at design occupancy
Infectious and clinical waste	≈ 140-210 kg/day	WHO unit rates applied to 700 beds at design occupancy
Companion facility – SRTRH (Kericho)	1,000 beds	Separate facility; separate ESIA; no scaling applied

Need for the Project

There is a high and growing demand for tertiary and super specialized healthcare services within Bungoma County and the broader Western Kenya region. This demand is driven by population growth, the rising burden of non-communicable diseases (such as cancer, cardiovascular diseases, and diabetes), and inadequate access to advanced healthcare services within the region. Within the current catchment area, lower-tier facilities such as Bungoma County Referral Hospital (Level 5, Bungoma town, Kanduyi constituency), Kabuchai Health Centre (Level 3A, Chwele), Nalondo Model Hospital (Level 3B), and Mukuyuni Sub-County Hospital provide primary and secondary care but lack the specialist and tertiary capacity required for complex and super-specialized cases. Patients requiring such services are routinely referred onward to facilities outside the county, resulting in delays, increased cost of care, and strain on referral systems. The proposed Level 6 Hospital is intended to relieve this referral burden by providing the specialist and tertiary capacity currently unavailable within the county.

Project Alternatives

The best alternative adopted therefore would be to implement the proposed project taking into consideration all the recommended environmental and social mitigation measures. Alternatives considered

in relation to the implementation of the proposed construction of the Bungoma Level 6 Hospital included relocating the project to an alternative site. This option was found not to be viable because the proposed hospital is strategically intended to improve access to healthcare services within Bungoma County and surrounding regions. Relocation would result in increased costs, delays in implementation, and potential challenges in land acquisition, planning approvals, and integration with existing infrastructure.

Another alternative considered was the “No Project Alternative,” which implies maintaining the current status quo. While this option would ensure that the existing environmental and social setting remains undisturbed in the short term, it is the least preferred in the long run from public health, socio-economic, and environmental perspectives. Failure to implement the project would mean continued congestion in existing health facilities, inadequate access to specialized healthcare services, increased referrals to distant hospitals, and persistence of poor health outcomes among the population.

Alternative design and technology options were also analysed, including different scales of hospital infrastructure and healthcare waste management systems. Stakeholders emphasized the need for modern, efficient, and environmentally friendly solutions, particularly in healthcare waste management, favouring non-burn technologies over conventional incineration due to concerns related to air pollution and climate change.

The best alternative adopted, therefore, is to implement the proposed construction of the Bungoma Level 6 Hospital while incorporating all recommended environmental and social mitigation measures. This approach will ensure improved healthcare service delivery, enhanced public health outcomes, and sustainable environmental management in line with national regulations and international best practices.

Need for Environmental and Social Impact Assessment (ESIA)

The environmental and social risks associated with the proposed construction of the Bungoma Level 6 Hospital are classified as substantial, considering the scale of the project, the nature of healthcare operations, and the potential environmental and social impacts. In line with the African Development Bank (AfDB) Operational Safeguards, several Environmental and Social Safeguards (ESS) are applicable to this project, with primary emphasis on environmental and social assessment, labor and working conditions, community health and safety, and pollution prevention and control.

The Environmental Management and Coordination Act (EMCA), 1999 (as amended), administered by the National Environment Management Authority, classifies large-scale infrastructure projects such as referral hospitals as high-risk projects. As such, the proposed hospital in Bungoma County requires a comprehensive Environmental and Social Impact Assessment (ESIA) to identify, evaluate, and mitigate potential impacts.

The Ministry of Health Kenya, as the project proponent, has appointed qualified environmental and social expert Ecotecture consultants to undertake the ESIA. This is to ensure that the implementation of the project complies with AfDB Operational Safeguards, Kenyan legal and regulatory requirements, and relevant environmental and social safeguard instruments.

These safeguard instruments include the Environmental and Social Management Plan (ESMP), Infection Prevention and Control and Waste Management Plan (IPC/WMP), Labour Management Procedures (LMP), Occupational Health and Safety Plans, and the Stakeholder Engagement Plan (SEP). These frameworks are designed to guide the project through all phases—planning, construction, and operation—ensuring that environmental and social risks are effectively managed, minimized, and monitored in line with national and international best practices.

Policy, Legal and Institutional Framework

The administrative and legal framework relevant to the Proposed Project in terms of applicable Policy Framework, Legal Framework, Institutional Framework, Social Statutes including African Development Bank Environment and Social Standards (ESS) and AfDB EHS Guidelines and other relevant Good International Industry Practice (GIIP) have been contextualized and presented in this ESIA.

Findings of the ESIA

The potential positive impacts associated with the implementation of the proposed construction of the Bungoma Level 6 Hospital, funded by the African Development Bank (AfDB), include the creation of employment and business opportunities during the construction phase, as well as improved efficiency and effectiveness in delivery of healthcare services during the operation phase. The project will enhance access to specialized medical care in Bungoma County, reduce referrals to distant facilities, and improve overall public health outcomes. Additionally, adoption of modern and environmentally friendly technologies—particularly in healthcare waste management—will minimize pollution and address concerns previously associated with poor waste disposal practices.

Possible adverse impacts during the construction phase of the proposed project include: interference with the physical environment such as clearing of vegetation and land disturbance; increased noise and vibration; air pollution and dust emissions; increased generation of construction waste; risks of accidental spillages of fuels and oils; increased demand for and extraction of construction materials; occupational safety and health (OSH) risks; fire hazards; and potential spread of communicable diseases including COVID-19. Social risks may include labour influx, increased risk of HIV/AIDS and other sexually transmitted infections, gender inequality concerns, possible human rights violations, conflicts and insecurity, sexual exploitation and abuse (SEA), and work-related or community grievances.

During the operation phase, challenges that may be encountered include increased demand for water and energy to support hospital operations, generation of medical and general waste requiring proper segregation and treatment, occupational health and safety risks for healthcare workers (including exposure to infectious materials and hazardous substances), community health risks associated with improper waste handling, and increased traffic from patients, visitors, and staff accessing the facility.

Other concerns during operation include occupational health and safety risks to healthcare workers, potential exposure to infectious diseases, and risks associated with handling hazardous medical materials. There may also be increased pressure on local infrastructure such as water supply, sanitation systems, and energy demand.

Overall, while the project presents some environmental and social risks, these can be effectively mitigated through implementation of appropriate Environmental and Social Management Plans (ESMPs), adherence to guidelines by the Ministry of Health Kenya and the National Environment Management Authority, and compliance with AfDB Operational Safeguards. The long-term benefits of improved healthcare access and enhanced public health outcomes significantly outweigh the potential negative impacts.

Key Significant Impacts and Mitigation Commitments

The most significant construction-phase impacts are vegetation clearance and land disturbance; noise, vibration and dust emissions; construction solid waste and accidental fuel/oil spills; occupational and public health and safety risks; and social risks associated with labour influx, including GBV/SEA risks, child-labour risk and community grievances. Key mitigation commitments include: an approved C-ESMP (incorporating OSH, waste management, labour and HIV/AIDS plans) as a condition precedent to works; PPE issuance tracking and enforced use; gender-sensitive sanitary facilities and safe drinking water for workers; a site clinic staffed by a qualified nurse with an MoU with a nearby health facility; signed Codes of Conduct with GBV/SEA provisions and site signage prohibiting child labour; revegetation with indigenous species; and enforcement of permitted construction working

hours.

The most significant operation-phase impacts are the generation of medical and general healthcare waste; wastewater and effluent; increased water and energy demand; occupational health and safety risks for healthcare workers; community health, safety and security risks; and GBV/SEA risks. Key mitigation commitments include: on-site treatment of the hospital's own biomedical waste using the NEMA-licensed non-burn (microwave) system under the Medical Waste Management Plan (Appendix 9); operation of the wastewater treatment plant under an Effluent Discharge Licence; water storage and rainwater harvesting with monitored demand; implementation of the Hospital Emergency Response Plan (Appendix 10); infection prevention and control protocols; and confidential, SEA/SH-sensitive grievance channels under the project GRM.

Public Participation, Stakeholder Engagement and Consultation Outcomes

Stakeholder consultation was undertaken in line with the Constitution of Kenya (2010), EMCA and the EIA Regulations, and AfDB Operational Safeguard 10 (Stakeholder Engagement and Information Disclosure). A public participation meeting was held on 15 April 2026 at the proposed project site, following a seven-day notice issued through the provincial administration and local radio. Participants included youth, women, the elderly, persons with disabilities, local administration, county and national government officials, religious leaders, the media and NEMA experts. Signed minutes, attendance registers and photographs are appended as Appendix 6, and the full Stakeholder Engagement Plan as Appendix 8. Consultation outcomes: the majority of participants supported the project; concerns centred on inclusivity and equity in local employment and community empowerment opportunities, gender inclusivity, and apprehension over possible delays in implementation. These concerns have been carried into the project commitments – facilitation of local recruitment through labour management procedures and community liaison, gender-inclusive hiring consistent with the 2/3 gender rule, realistic communication of the implementation timetable, and continuing engagement throughout implementation under the SEP (Appendix 8), with grievances handled through the project GRM (Section 3.3.7; Appendix 5).

Summary of the Environmental and Social Management Plan (ESMP)

Chapter 8 presents the ESMP covering project preparation, construction, operation and decommissioning. For each identified impact, Tables 11 and 12 assign the mitigation measures, monitoring indicators, timing and monitoring frequency, responsible parties and estimated implementation costs in Kenya Shillings. During construction, day-to-day implementation rests with the Contractor through the approved C-ESMP, under the supervision of the supervising consultant and the Project Management Team; during operation, responsibility rests with the hospital management and the County Health Department. The ESMP integrates the project's standalone instruments – the Grievance Redress Management Plan (Appendix 5), Stakeholder Engagement Plan (Appendix 8), Medical Waste Management Plan (Appendix 9) and Hospital Emergency Response Plan (Appendix 10). Compliance will be verified through the key monitoring indicators (Section 8.7), quarterly safeguard reporting, the Year-1 environmental audit required under the NEMA licence, and the African Development Bank's implementation support and supervision missions.

Project Implementation and Monitoring Arrangements

The responsibility of supervision and monitoring of project environmental and social compliance falls mainly on Bungoma County Government through the County Health Department. Key players in the monitoring of compliance in the project will include inter alia the Public Health Officer, MoH (E&S Specialist, Hospital Administrator); Public Works Engineer (PWE) and Occupational Health and Safety Officer.

Residual Risks and ESMP Commitments

Baseline Studies Deferred to Detailed Design

The baseline presented in this chapter is supported by field-measured ambient noise data,

by an extrapolated air quality baseline with a time-bound commitment to confirmatory site-specific monitoring (Appendix 7), and by a geotechnical and seismic siting assessment. Three further baseline studies are not required to characterise the receiving environment for the purposes of this assessment and are deferred to the detailed design stage. They are stated explicitly below with their scope, responsible party and timing so that the commitment is auditable. None of the deferred studies is capable of altering the impact significance ratings or the conclusions of this ESIA; each serves to refine the design and the monitoring baseline.

Deferred baseline study	Scope	Responsible party	Timing	Purpose and use of the data
Traffic baseline survey	Classified turning counts at the site accesses and at the Chwele-Bungoma and Kanduyi road junctions serving the site; peak-hour flows; queue length and journey-time survey; heavy goods vehicle proportion; school and market movement times for the KMTC and Sichei FYM school frontages	Proponent, through a qualified transport consultant, with the Bungoma County Engineer	Detailed design stage, and in any event before approval of the Contractor's Traffic Management Plan	To calibrate the Traffic Management Plan and the site access design, and to set the baseline against which operational trip generation is monitored
Biodiversity screening survey	Walkover habitat survey of the site and a 500 m buffer, including the Mount Elgon foothill drainage lines; flora and fauna species list; screening against protected and priority species; confirmation of the absence of critical habitat	Proponent, through a qualified ecologist	Detailed design stage, and in any event before any vegetation clearance	To confirm the modified-habitat classification applied in this ESIA, and to inform the revegetation and landscaping specification
Household socio-economic survey	Structured household survey of Sichei village and the settlements within the area of influence; income, livelihood and service access profile; vulnerable-group identification (women-headed households, persons with disabilities, older persons, low-income households); local labour availability	Proponent, through a qualified social specialist, coordinated with the Stakeholder Engagement Plan (Appendix 8)	Detailed design stage, and thereafter repeated at the Year-1 environmental audit	To refine the vulnerable-group analysis, to target local recruitment and community investment, and to establish the socio-economic baseline for monitoring

Each deferred study is carried as a line item in the Environmental and Social Management and Monitoring Plan, is a responsibility of the Proponent, and its completion is reported to the Bank through the quarterly safeguard report. Where a deferred study identifies a condition materially different from that assumed in this ESIA, the assessment will be revisited and the Bank notified.

After implementation of the committed mitigation measures, residual impacts are assessed as Low to Medium and acceptable for a facility of this nature: no residual impact is rated High. The remaining Medium-rated risks (community health, safety and security; water demand; institutional capacity; and low-probability emergency events) are managed through the ESMP, the Medical Waste Management Plan (Appendix 9), the Emergency Response Plan (Appendix 10), the Stakeholder Engagement Plan (Appendix 8) and the Grievance Redress Mechanism (Appendix 5), and are detailed in the Residual Impact and Risk Assessment section of this report. The ESMP assigns, for each impact, the mitigation measures, monitoring indicators, timing and frequency,

responsible parties (including the Contractor during construction) and estimated implementation costs in Kenya Shillings; compliance will be verified through quarterly safeguard reporting, the Year-1 environmental audit required under the NEMA licence, and the African Development Bank's implementation support and supervision.

Recommendations

The following are recommended going-forward with the project:

- a. Though the anticipated negative environmental and social impacts of the project sub-components are considered moderate, localized and can be easily mitigated, the ESMP needs to be operationalized to ensure sustainable delivery of this project.
- b. In addition, the institutional framework for the delivery of the project needs to be operationalized to effectively follow up compliance as per their mandates.
- c. Continued awareness creation and engagement of all institutional stakeholders - including the County Government of Bungoma, NEMA, the Ministry of Health, and local community leadership - should be maintained throughout project implementation to sustain support, ensure timely resolution of emerging issues, and reinforce compliance with environmental and social commitments.

Conclusion

- a. The proposed project does not pose any serious environmental and social concerns, other than those of a moderate scale that accompany similar projects;
- b. The positive impacts associated with the implementation and operationalization of the proposed project far outweigh the probable negative ones, which will be adequately checked by following the prescribed environmental and social impact management and monitoring plans;
- c. As such, as per the above analysis on the aspects of both positive and negative environmental and social impacts of the project development and operations, we, the experts found no significant negative impacts
- d. that could pose adverse effects to the extent of barring the proposed project from being implemented assuming the project is designed, constructed, monitored and operated in compliance with all applicable design and ESHS requirements.
- e. Given that the MoH and the Hospital Management are committed to implementing all the recommendations made in this ESIA report via the developed ESMP/ESMMP and following the other guidelines annexed to ensure optimal operation of the Bungoma level 6 Hospital.

1. INTRODUCTION

1.1 Introduction to the Project

The Government of the Republic of Kenya (GoK) has prioritized the strengthening of the healthcare system to ensure universal access to quality and affordable health services for all citizens by the year 2030. This is in line with the United Nations Sustainable Development Goals (SDG) No. 3 objective of “ensuring healthy lives and promoting well-being for all at all ages.”

The Government of Kenya has further initiated the “Big Four Agenda,” which places Universal Health Coverage (UHC) as a key pillar aimed at improving access to essential healthcare services in line with the Constitution of Kenya 2010. A key benchmark of the Constitution is stipulated under Chapter IV - Bill of Rights, Article 43(1)(a), which states: “Every person has the right to the highest attainable standard of health, which includes the right to healthcare services.”

It is in this respect that the Government of Kenya (GoK) has received financing from the African Development Bank (AfDB) to support the development of healthcare infrastructure across the country. The main objective of this initiative is to improve access, availability, and quality of healthcare services with the aim of:

- Catalysing efficient healthcare service delivery
- Driving socio-economic growth
- Improving the quality of life of the population
- Reducing disease burden and mortality rates
- Enhancing resilience against public health emergencies and pandemics

To achieve this objective, Bungoma County has been prioritized as one of the regions to benefit from the programme through the proposed construction and operationalization of the Bungoma Level 6 Hospital.

The Project Executing Agency (PEA) will be the Ministry of Health Kenya in collaboration with the Bungoma County Government. These institutions are responsible for policy formulation, development, and management of healthcare services and infrastructure within their respective jurisdictions.

The Ministry of Health Kenya is mandated to provide leadership and policy direction in the health sector, ensuring provision of quality and affordable healthcare services nationwide. The Bungoma County Government, under the devolved system of governance, is responsible for the delivery of health services at the county level, including the management of county health facilities and implementation of health programmes.

As stipulated in the Constitution of Kenya 2010 and relevant health sector policies, once completed, the Bungoma Level 6 Hospital will be managed and operated under a collaborative framework between the national and county governments to ensure efficient service delivery.

The proposed Project is located within Bungoma County and is expected to serve not only the local population but also neighbouring counties by providing specialized and referral healthcare services. The facility will play a critical role in decongesting existing hospitals and reducing referrals to national referral facilities.

Additionally, the project will support capacity building for healthcare workers, strengthen health systems, and improve overall service delivery within the region, thereby contributing to the realization of Universal Health Coverage and sustainable development in Kenya.

As per the Second Schedule to the of EMCA Act, the project falls under Category 3, High risk projects, hospitals.

1.2 Project Background

Access to quality and specialized healthcare services remains a significant challenge in Bungoma County and the wider Western Kenya region. Rapid population growth, changing disease patterns particularly the rise in non-communicable diseases such as cancer, cardiovascular conditions, and diabetes and increasing demand for advanced medical care have placed considerable strain on the

existing healthcare system. Despite ongoing investments in the health sector, there remains a critical gap in the availability of tertiary and super specialized healthcare facilities capable of delivering advanced diagnostics, complex surgical procedures, research, and training services.

Bungoma Town, the administrative and economic centre of Bungoma County, has experienced steady urbanization and population growth, with the county's population exceeding 1.7 million residents and an even larger catchment population extending to neighbouring counties such as Busia, Kakamega, Trans Nzoia, and parts of Siaya and West Pokot. The town is strategically located within the Western Kenya transport network and serves as a key regional hub, enhancing its suitability for hosting a national-level referral facility.

However, the absence of a Level 6 Referral Hospital within Bungoma and the wider Western region has resulted in heavy reliance on distant facilities such as Moi Teaching and Referral Hospital in Eldoret and Kenyatta National Hospital in Nairobi. These facilities are often overstretched, leading to congestion, prolonged waiting times, and limited access to timely and specialized care.

Patients requiring advanced and super specialized treatment are frequently forced to travel long distances, incurring high transportation and accommodation costs, experiencing delays in receiving care, and facing increased health risks particularly in emergency and critical cases. Additionally, the lack of local access to high-level healthcare services limits opportunities for medical training, research, and capacity building within the region.

This situation underscores the urgent need for the proposed construction of a Level 6 Referral Hospital in Bungoma. The project aims to enhance access to equitable, efficient, and high-quality healthcare services by decentralizing specialized care, reducing congestion in existing national referral hospitals, and strengthening the overall healthcare system in Western Kenya. The facility will also serve as a centre of excellence for medical training, research, and innovation, contributing to improved health outcomes and socio-economic development in the region.

1.3 Problem statement

The proposed establishment of Bungoma level 6 Hospital in Bungoma County arises from the growing demand for accessible, safe and general healthcare services driven by population growth, increased service utilization, and the need to strengthen primary and secondary healthcare delivery within the area. Existing healthcare facilities in and around Londiani are constrained by limited capacity and inadequate infrastructure, resulting in operational challenges and increased referrals to higher-level hospitals. The proposed development is therefore necessary to enhance service availability, improve environmental health standards, and strengthen continuity of care.

The project is consistent with national health and development policies that prioritize equitable access to quality healthcare services as a foundation for socio-economic development. Kenya Vision 2030, the Constitution of Kenya (2010), the Kenya Health Policy 2014-2030, and the Universal Health Coverage (UHC) Policy 2020-2030 emphasize the need to strengthen healthcare infrastructure and improve maternal and newborn health outcomes. By establishing a modern health facility and providing essential support infrastructure such as reliable water supply, improved sanitation facilities, and enhanced security, the project directly contributes to national objectives of improving quality of care, reducing preventable maternal and neonatal morbidity, and ensuring geographical access to essential health services.

At the local level, the proposed development responds to persistent healthcare infrastructure gaps faced by Bungoma and surrounding communities.

The project also has strong social and economic justification. Improved healthcare infrastructure is expected to lead to better health outcomes, reduced referrals, enhanced patient safety, and improved working conditions for healthcare staff. During the construction phase, the project will generate temporary employment opportunities for local artisans and labourers, contributing to local economic activity. In the long term, strengthened maternal and general healthcare services will support human capital development, productivity, and community wellbeing.

Furthermore, the proposed development will be undertaken on designated project land, ensuring compatibility with surrounding land uses and avoiding involuntary displacement. Potential environmental and social impacts associated with construction and operation have been identified and will be managed through appropriate mitigation measures in compliance with the Environmental Management and Coordination Act (EMCA), public health regulations, occupational safety standards, and Ministry of Health guidelines.

1.4 The proposed solution

The proposed solution entails the construction and operationalization of Bungoma Level 6 Hospital as a modern referral healthcare facility designed to enhance access to quality, specialized, and emergency medical services within Bungoma County and the wider Western region. The project integrates sustainable construction practices and robust environmental management measures to ensure minimal adverse environmental and social impacts throughout its lifecycle.

The construction phase will involve site preparation, excavation, foundation works, structural development, installation of utilities (water, sewer, stormwater drainage, and energy systems), and development of access roads and ancillary facilities. Environmental considerations during this phase will include soil erosion control, proper management of construction waste, dust and noise suppression, safe disposal of excavated materials, and adherence to occupational health and safety standards for workers and the surrounding community.

To enhance environmental sustainability, the hospital design will incorporate green building principles such as energy-efficient systems (including solar power integration), water conservation measures (rainwater harvesting and low-flow fixtures), and climate-resilient infrastructure. Landscaping and green spaces will also be integrated to improve air quality and promote a healing environment.

During operation, the hospital will implement a comprehensive Environmental and Social Management Plan (ESMP) and Infection Control and Waste Management Plan (ICWMP). These frameworks will address key areas including waste segregation, handling, storage, treatment, and disposal in compliance with national environmental regulations. The hospital is expected to generate significant quantities of healthcare waste due to its Level 6 status and expanded service capacity. However, with proper segregation, only a fraction of this waste will be classified as infectious or hazardous.

To manage this effectively, the project proposes the installation of a modern, environmentally friendly non-burn Medical Waste Treatment Machine (MWTM), such as an autoclave or microwave system. This technology will ensure safe treatment of infectious waste without generating harmful emissions associated with incineration. The system will be adequately sized to handle projected waste volumes and may also serve surrounding healthcare facilities, thereby improving regional waste management capacity.

Additional environmental measures will include proper wastewater treatment through an onsite sewage treatment plant, stormwater management to prevent flooding and contamination, and continuous environmental monitoring to ensure compliance with regulatory standards. Staff training programs on infection prevention, waste management, and environmental sustainability will also be implemented to support effective operations.

The need for this project is justified by the increasing demand for advanced healthcare services, population growth, and the current strain on existing healthcare facilities. The integration of environmentally sustainable construction and operational practices ensures that the Bungoma Level 6 Hospital will not only improve healthcare delivery but also safeguard environmental quality and public health in the region.

1.5 Project Objectives

The overall objective of the proposed Bungoma Level 6 Hospital project is to improve access to quality, affordable, and specialized healthcare services for residents of Bungoma County and the wider Western Kenya region, while ensuring environmental sustainability and public health protection.

Specific Objectives

- To construct a modern, well-equipped Level 6 referral hospital with adequate capacity to provide specialized, emergency, and general healthcare services.
- To reduce patient referrals to distant facilities by enhancing local capacity for advanced diagnostics, treatment, and specialized care.
- To integrate environmentally sustainable design and construction practices, including energy efficiency, water conservation, and climate-resilient infrastructure.
- To establish an efficient and compliant healthcare waste management system, including waste segregation, handling, treatment, and disposal using environmentally friendly technologies.
- To minimize environmental and social impacts associated with construction and operation through the implementation of an Environmental and Social Management Plan (ESMP).
- To improve infection prevention and control measures within the hospital through proper infrastructure design and operational protocols.
- To enhance emergency preparedness and response capacity within the region.
- To create employment opportunities and stimulate local economic development during both construction and operational phases of the project.
- To support the realization of Universal Health Coverage (UHC) by increasing access to equitable and quality healthcare services.
- To strengthen regional healthcare systems by serving as a referral centre for surrounding counties and supporting lower-level health facilities.

1.6 ESIA Scope

The goal is to identify the potential environmental and social impacts associated with the proposed project and recommend appropriate environmental and social mitigation measures for integration in all phases of the project cycle.

1.7 Terms of Reference (ToRs)

The primary objective of the consultancy is to undertake a comprehensive Environmental and Social Impact Assessment (ESIA) for the proposed construction of Bungoma Level 6 Hospital in order to determine the technical, environmental, social, and economic viability of the project.

The Terms of Reference (ToRs) for this ESIA study are:

- To assess the technical feasibility of constructing the proposed Level 6 Hospital, including site suitability, design requirements, infrastructure needs (water, energy, sewerage, and access roads), and construction methods;
- To evaluate the environmental and social viability of the project, including identification of potential environmental and social risks and opportunities associated with the construction and operation of the hospital;
 - i. To analyse the economic and financial feasibility of the project, including capital investment costs, operational and maintenance costs, potential funding sources, and long-term sustainability;
 - ii. To assess demand and service need, including population projections, disease burden, healthcare gaps, and the hospital's role as a referral facility within Bungoma County and neighbouring regions;
 - iii. To undertake project alternatives analysis, including site alternatives, design options, technology choices, and the "no project" scenario;
 - iv. To evaluate environmental, health, and safety considerations, including proposed mitigation measures to ensure compliance with national regulations and international best practices throughout the project lifecycle;

- v. To assess institutional and operational capacity, including staffing requirements, management structures, and governance frameworks necessary for effective hospital operation;
- vi. To conduct stakeholder consultations with key stakeholders, including government agencies, local communities, and healthcare providers, to gather input and enhance project acceptability;
- vii. To develop a preliminary Environmental and Social Management Framework (ESMF) outlining mitigation measures, monitoring mechanisms, roles and responsibilities, and implementation schedules;
- viii. To prepare a comprehensive feasibility report that provides clear recommendations on the viability of the project and guidance for subsequent design, financing, construction, and operation phases

Justification for Preparation of Safeguards Instruments

Under the provisions of the EMCA, 1999, amended in 2015, the EMCA (Environmental Impact Assessment and Environmental Audit) Regulations of 2003 (Revised in 2016) it is a requirement that an ESIA is undertaken prior to construction and commissioning of a medical waste treatment equipment. The Legal Notice Number 31 read together with Legal Notice Number 32 of 2019 classifies Construction of level 6 hospital as–High Risk Projects that need to be subjected to –Comprehensive ESIA prior implementation. The proposed project is prepared under the African Development Bank, whereby the Environmental and Social Risk associated with the proposed project was initially classified as –High considering that Kenya has limited experience in managing infectious medical wastes, reflecting the limited number of NEMA-licensed medical waste treatment facilities and non-burn (autoclave/microwave) technology providers currently operating in the country relative to the volume of healthcare waste generated nationally; however, this has since been downgraded to substantial based on overall improvement of project performance.

Carrying out this ESIA aims to inform the process of decision making (whether to implement the project or not, and under what conditions) by identifying and addressing the potentially significant environmental, social and economic risks of projects as well to promote sustainable development by ensuring that the project does not undermine critical resource and ecological functions or the well-being and livelihood of the communities who depend on them around the project site

1.8 Definition and Purpose of the ESIA

ESIA is a process for predicting and assessing the potential environmental and social impacts of a proposed project, evaluating alternatives and designing appropriate mitigation, management and monitoring measures (Business Biodiversity and Offsets Programme (BBOP) 2012)

1.9 Methodology of ESIA

For the purpose of the assessment and preparation of the ESIA Comprehensive Project Report², the following approaches and methodologies were employed:

- Desktop studies which involved review and analysis of literature (project documents, design layout and specifications, legislative framework) for acquisition of secondary data, environmental and Social Screening Form)
- Environmental and social screening was carried out following the requirements, in which the project is identified as among those requiring ESIA. The Second Schedule of EMCA 1999 as amended in 2015 classifies the investment as a High-Risk project. In addition, under the World Bank ESF, the Environmental and Social Risk associated with the proposed project is currently classified as Substantial.
- Environmental scoping that provided the key environmental and social issues to be investigated in relation to implementation of the proposed project;
- Physical inspection of the site characteristics and environmental status of surrounding areas;
- Consultative public participation (CPP) to get input into the project activities/risks/impacts and proposed mitigation measures. The CPP was done as per the Stakeholder Engagement Plan (SEP) guidelines and in conformity with the provisions of the Constitution of Kenya (2010), the EMCA (2015), the EMCA (Environmental Impact Assessment and Environmental Audit) Regulations and the Legal Notice Number

31 and 32 of 2019, that all demand for public engagement prior to the implementation of a project such as the one being assessed;

- Identification of potential environment and social impacts and preparation of an ESMP; and reporting.

1.9.1 Consultation and Public Participation

CPP was done with involvement of stakeholders within the Project Area of Influence (PAI). This promotes open governance whereby participants are granted equal opportunity to voice their opinion/views with regard to the proposed project for better planning. It further presents an opportunity to raise awareness concerning the proposed sub-projects.

This was done as per the SEP guidelines and in conformity with the provisions of the Constitution of Kenya (2010), the EMCA (2015), the EMCA (Environmental Impact Assessment and Environmental Audit) Regulations and the Legal Notice Number 31 and 32 of 2019, that all demand for public engagement prior the implementation of a project such as the one being assessed.

Lead agencies were consulted at various levels in the month of April, 2026 and support for the project noted as significant.

A public participation meeting was held on 15th of April 2026 after a seven-day notification for the meeting was circulated via the local provincial administration and the local radio media channels.

2. PROJECT DESCRIPTION

2.1 Introduction

The proposed project entails the Construction of Bungoma Level 6 Referral Hospital including development of modern healthcare infrastructure, installation of medical equipment, and operationalization of comprehensive healthcare services.

The project will include:

- Site preparation and civil works
- Construction of hospital buildings and support infrastructure
- Installation of medical equipment and ICT systems
- Staffing and commissioning of healthcare services

The proposed Construction of Bungoma Level 6 Referral Hospital will be designed as a comprehensive, modern healthcare facility with an estimated capacity of 700 beds, capable of delivering both general and specialized medical services. The hospital will be organized into functional units to ensure efficiency, patient safety, and quality service delivery.

2.2 Proposed Location of the Project

The proposed site for the Sichei Level VI Hospital is located in Kabuchai sub-county, Mukuyuni ward, Sichei village within Kabuchai constituency, Bungoma County. The land is currently undeveloped and predominantly open, with agricultural activities being the main previous use under lease arrangements with the County Government of Bungoma. The greenfield site sits next to Chwele Kenya medical training college (KMTC). The site is located at GPS Coordinates 0.728608°N, 34.579199°E.

The site sits within a broadly institutional land-use zone, neighbouring the Sichei Kenya Medical Training College (KMTC) and other nearby learning institutions, with surrounding land predominantly under small-scale agricultural use typical of the wider Kabuchai and Mukuyuni area. Based on available county planning and environmental records reviewed for this assessment, there are no gazetted forest reserves or protected wetlands immediately adjacent to the site. Site photographs illustrating existing site conditions are included in the public participation record and site survey documentation appended to this report.

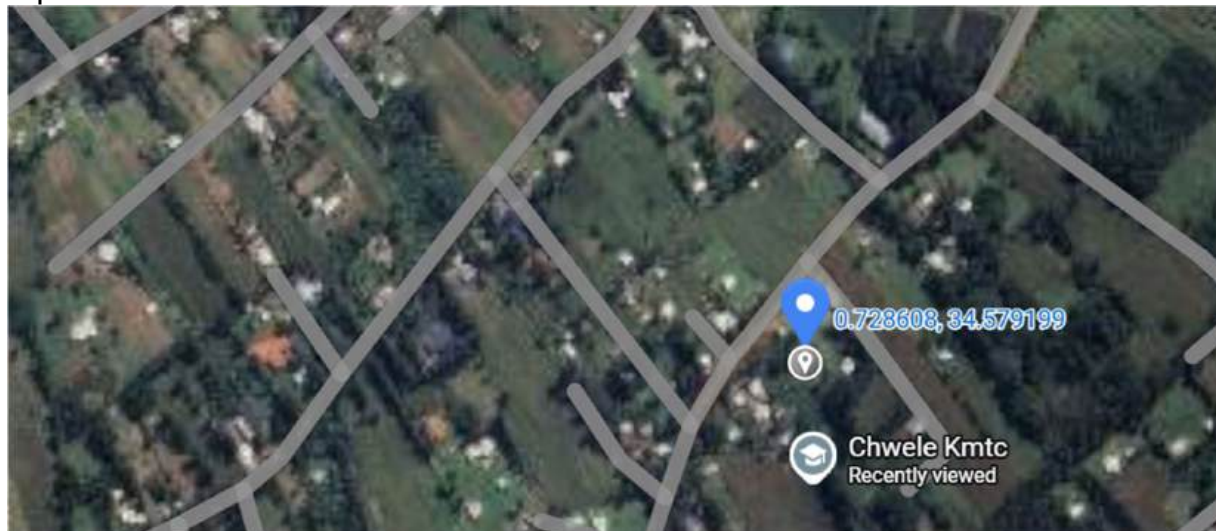


Figure 2: Location and Direction Map (Source: www.earth.google.com).

2.2.1 Site and Land Ownership

The proposed site for the proposed Level 6 Teaching and referral hospital was identified as a green

field site on Plot L.R No. Bokoli/Chwele 2458, measuring approximately 50 acres in total, comprising:

1. Approximately 20 acres whose ownership has been transferred from the Kenya Medical Training College (KMTC) to the project.
2. The remaining approximately 30 acres, which are in the process of being transferred to the project, consistent with the Feasibility Study Report (FSR).

While the area is not covered within an approved Physical Development Plan (PDP), the site sits within an institutional zone, with the neighbouring institutions including the Sichei KMTC, and the Sichei FYM comprehensive school in the vicinity of the site.

Land ownership documentation for the site is provided as Appendix 4: Land Ownership Documentation to this report. Certificates of title were issued by the Bungoma Land Registry on 7 May 2026 – Title No. Bokoli/Chwele/6119 (approximately 7.141 hectares) registered to Bungoma Teaching and Referral Hospital, and Title No. Bokoli/Chwele/6120 (approximately 3.66 hectares) registered to KMTC – Sichei Campus. The encumbrances section of the register is blank for each parcel. Title No. Bokoli/Chwele/6119 constitutes the land transferred to the project to date; title documents for the balance of the land contemplated by the Feasibility Study Report are under preparation.

Land ownership documentation, including cadastral survey records and title registration for land under acquisition, is under processing. Authentication of survey records is undertaken by the Director of Surveys under the Ministry of Lands, Public Works, Housing and Urban Development, followed by registration and issuance of title by the Chief Land Registrar. The acquired land shall be administered by the County Government of Bungoma.

At the time of assessment, it was established that there are no encumbrances, disputes, or adverse legal claims affecting the site reported.

2.3 Project Description

2.3.1 Project Design Considerations

The proposed project entails the Construction of Bungoma Level 6 Referral Hospital including development of modern healthcare infrastructure, installation of medical equipment, and operationalization of comprehensive healthcare services.

The project will include:

- Site preparation and civil works
- Construction of hospital buildings and support infrastructure
- Installation of medical equipment and ICT systems
- Staffing and commissioning of healthcare services

The proposed Construction of Bungoma Level 6 Referral Hospital will be designed as a comprehensive, modern healthcare facility with an estimated capacity of 700 beds, capable of delivering both general and specialized medical services. The hospital will be organized into functional units to ensure efficiency, patient safety, and quality service delivery.

Based on the approved 700-bed commissioned capacity and WHO benchmarks for Level VI teaching and referral hospitals, waste generation at the Bungoma Level 6 Hospital is estimated at approximately 700 to 980 kg/day of general (non-hazardous) waste, and approximately 140 to 210 kg/day of infectious/clinical waste. These figures are design-stage estimates that will be refined during detailed engineering and confirmed through actual waste audits once the facility is operational. Waste generated will be managed through the project's own NEMA-licensed on-site treatment facility (non-burn microwave/autoclave technology, with residual incineration capacity), as detailed in the Medical Waste Management Plan (Appendix 9), with any residual non-treatable waste directed to licensed county disposal facilities.

Accident and Emergency (A&E) Unit

The Accident and Emergency Unit will serve as the primary entry point for emergency cases and will operate on a 24-hour basis. It will be strategically located for easy access and rapid response.

Key components will include:

- Triage area for patient prioritization
- Resuscitation rooms equipped with life-support systems
- Emergency treatment bays
- Minor and major procedure rooms
- Ambulance bay and patient reception area
- Emergency pharmacy and diagnostic support

This unit will significantly enhance the hospital's capacity to handle trauma cases, accidents, and acute medical emergencies, reducing mortality associated with delayed care.

Intensive Care Unit (ICU) and High Dependency Unit (HDU)

The ICU and HDU will provide critical care services for patients with life-threatening conditions requiring continuous monitoring and advanced medical support.

Features will include:

- Fully equipped ICU beds with ventilators and monitoring systems
- HDU beds for patients requiring close observation but less intensive care
- Central monitoring stations
- Isolation rooms for infectious cases
- Backup power systems to ensure uninterrupted care

This facility will address the current gap in critical care services within the region.

Maternity and Neonatal Care Unit

This unit will provide comprehensive maternal and child health services, contributing to reduced maternal and infant mortality rates.

Components will include:

- Antenatal and postnatal care wards
- Labor and delivery suites
- Operating theatre for caesarean sections
- Neonatal Intensive Care Unit (NICU)
- Kangaroo mother care (KMC) rooms
- Immunization and child welfare clinics

The unit will support safe deliveries and specialized neonatal care.

Surgical Theatres (General and Specialized)

The hospital will include modern surgical theatres designed to handle a wide range of procedures.

Facilities will include:

- Fully equipped general operating theatres
- Specialized theatres (e.g., obstetric, orthopaedic surgeries)
- Pre-operative and post-operative recovery rooms
- Sterilization unit (CSSD - Central Sterile Services Department)

These theatres will enable the hospital to perform both elective and emergency surgical procedures, reducing referrals to distant hospitals.

Diagnostic Centre

The diagnostic unit will provide comprehensive laboratory and imaging services to support accurate diagnosis and treatment.

Key services will include:

- Clinical laboratory (haematology, microbiology, biochemistry)
- Radiology services (X-ray, ultrasound)
- Advanced imaging (CT scan)
- Pathology services

The integration of diagnostic services will improve efficiency and quality of care.

Outpatient and Inpatient Departments

Outpatient Department (OPD):

- Consultation rooms for various specialties
- Waiting areas and reception
- Minor procedure rooms

Inpatient Department (IPD):

- General wards (male, female, paediatric)
- Private and semi-private wards
- Isolation wards for infectious diseases

These departments will ensure continuity of care from diagnosis to treatment and recovery.

Pharmacy and Support Services

The hospital will include a fully functional pharmacy and essential support services to ensure smooth operations.

Pharmacy services:

- Drug storage and dispensing units
- Cold chain systems for vaccines
- Inventory management systems
- Support services:
- Laundry and linen services
- Kitchen and catering services
- Waste management systems (including medical waste handling)
- Mortuary services

Administrative and Staff Facilities

Efficient hospital management will be supported through well-designed administrative and staff facilities.

These will include:

- Administrative offices.
- Medical records department.
- Staff rooms and changing areas.
- Training and conference rooms.
- Staff accommodation.

These facilities will enhance institutional capacity, coordination, and service delivery efficiency.

2.3.2 Project Activities

i) Planning and Design Phase

This forms the foundation of the project and is purely preparatory stage for the proposed of Bungoma level 6 hospital. Generally, this phase involves minimal physical engagements at the project site apart from boardroom consultations/ meetings, site visits, desktop works and awareness meetings and stakeholders and public consultations and participation. The specific activities during this phase entail the design and drawing of the specific architectural plans for the proposed construction of the hospital, applying for approvals from the Bungoma County Government section, getting into collaborative agreements with key stakeholders, undertaking the ESIA and seeking NEMA approvals.

ii) Construction Phase

The activities at this stage of the proposed construction of level 6 facility will include recruitment of construction staff by the construction company; transportation of building materials; storage of the construction material; civil works and installation of utility services.

iii) Operation Phase

During the operation phase, the facility will undertake routine maintenance activities including cleaning, regular inspection of medical equipment, infrastructure servicing, and timely repairs to ensure continuous and safe service delivery. Skilled personnel will be employed across various departments, including doctors, nurses, technicians, and support staff, who will operate hospital systems and handle minor repairs and maintenance tasks.

The hospital will provide a wide range of healthcare services including outpatient and inpatient care, surgical procedures, maternal and child health services, emergency and trauma care, laboratory diagnostics, radiology services, and specialized treatments such as dialysis and intensive care. In addition, the facility will handle healthcare waste generated from its operations, including infectious waste, sharps, pathological waste, pharmaceutical waste, and general waste.

Waste management will be conducted in accordance with national regulations such as the Kenya Waste Management Regulations 2024 and the guidelines provided by the Ministry of Health Kenya. Proper segregation of waste at source will be emphasized to minimize health and environmental risks. Hazardous waste such as chemical, radiological, and pharmaceutical waste will be handled and disposed of using specialized and approved methods in line with best practices and regulatory requirements.

Failure to properly segregate healthcare waste may result in contamination risks to healthcare workers, patients, and the environment. Therefore, strict infection prevention and control measures will be implemented, including staff training, provision of protective equipment, and adherence to established waste handling protocols. Additionally, wastewater generated from hospital operations will be treated appropriately before discharge to prevent environmental pollution.

Overall, the operation phase of the Bungoma Level 6 Hospital will focus on delivering sustainable healthcare services while ensuring safety, regulatory compliance, and environmental protection.

3. ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION

Baseline information establishes the current biophysical and social/socio-economic conditions against which the performance of environmental and social strategies will be evaluated. The expected environmental, social and economic gains from the proposed project must be weighed in light of possible negative impacts on the surrounding environment and social fabric and tenable measures that have been proposed to mitigate against such impacts. The baseline information for this project was gathered from both secondary sources and the field visits undertaken.

3.1 Physiographic and Natural Conditions

The County covers a land area of 3024 km², of which 618 km² is gazetted forest reserve (the Mt. Elgon Forest reserve), 61 km² is non-gazetted forest, and 50.7 km² is Mt. Elgon National Park. The altitude of the County ranges from 1,200m to 4,321m above sea level. The County's major physical features include Mt. Elgon; Chetambe, Sang'alo, and Kabuchai hills; the Nzoia, Kuywa, Sosio, Kibisi and Sio-Malaba/Malakisi rivers; and waterfalls like Nabuyole, Malakisi and Teremi. (Bungoma County Integrated Development Plan, 2023-2027). The County's topography is scenic and is home to tourist attraction sites, for instance, Mount Elgon forms one of Kenya's five water towers. Wind energy can be tapped in the hills and mountain top. However, the steep terrain in the highland areas of the County constrains infrastructural expansion. There is soil erosion during heavy rains from Mount Elgon slopes and other hilly areas. This is caused by human encroachment and poor farming practices on these fragile sites. The low-lying areas such as Bumula experience flooding from run-off from the hilly areas. At a more local scale, the project site lies within the broader physiographic setting shaped by the volcanic foothills of Mount Elgon, whose eroded slopes and associated volcanic soils extend into the Kabuchai and Mukuyuni area. The immediate landscape around the site is further characterized by a number of local hillocks, including Chetambe, Sang'alo, and Kabuchai hills, which form prominent physical landmarks in the surrounding terrain. The area also drains toward nearby watercourses, notably the Nabuyole and Teremi rivers and their associated waterfalls, which contribute to the local topographic and hydrological context within which the proposed hospital site is set.

3.1.1 Climatic Conditions

Bungoma County, located in western Kenya near the Ugandan border is influenced by the Lake Victoria basin and Mount Elgon, features a tropical savanna climate (Köppen classification: Aw). This results in warm, stable temperatures year-round with minimal extremes, moderated by elevations of approximately 1,200-1,500 meters above sea level.

The county experiences bimodal rainfall patterns driven by monsoon winds: the long rains from March to May (often extending into June) and the short rains from October to December. Dry periods typically occur from June to September and January to February. Annual precipitation averages between 1,100 and 1,400 mm, supporting agriculture but also posing risks of localized flooding. Thunderstorms are common during wet seasons, contributing to convective rainfall. Overall, the climate is favorable for human habitation and development, though seasonal variations require adaptation in infrastructure design, particularly for drainage and ventilation.

3.1.2 Soils

The soils observed during the site visit were inferred to be sandy loams, which is unique to the site. The appropriate structural systems for the proposed Level VI hospital shall be subject to confirmation through geotechnical investigations.

General geotechnical conditions within the Bungoma area, as assessed by the County Government's engineering department, are considered acceptable for the construction of a Level 6 hospital facility. The local geology comprises metamorphic bedrock in the vicinity of Bungoma town, overlain by fertile volcanic-derived soils originating from the Mount Elgon volcanic complex, which generally exhibit reasonable bearing capacity subject to

standard foundation engineering practice. Site-specific trial pit investigations will be undertaken at each identified structure location during the architectural concept design stage, with findings incorporated into the structural engineering design and reviewed as part of subsequent design-stage environmental and social due diligence.

With regard to seismic hazard, Kenya's seismic hazard zonation (Ministry of Works, 1973, based on the Modified Mercalli Intensity scale) places north-western Kenya, including Bungoma, within a zone of moderate seismic hazard, broadly corresponding to Zones VI-VII, with an indicative design peak ground acceleration (PGA) of approximately 0.0125g to 0.025g. This zonation is dated and may be conservative or outdated relative to current seismic hazard assessment standards; a site-specific seismic hazard assessment is therefore recommended at the structural design stage to confirm appropriate design parameters.

3.2 Biological Environment

3.2.1 Flora and Fauna

Land surrounding the site is largely undeveloped or under low-intensity use. There is limited presence of industrial or high-density commercial activities in the immediate vicinity.

The site is visually open, with views toward adjacent open land under agricultural use. No incompatible land uses were identified adjacent to the site at the time of assessment.

Viewed across the different directions around the site, the general vegetation character is broadly consistent: cultivated and agricultural land predominates to the north, south, and east, comprising smallholder crop fields interspersed with occasional grazing land, while land to the west and immediate surrounds of the neighbouring KMTC campus carries a mix of maintained institutional grounds and scattered indigenous trees near homesteads and compound boundaries. No dense natural forest cover, gazetted woodland, or riverine forest was observed immediately on-site or in the directly adjoining parcels, consistent with the site's long-standing use for agriculture and low-intensity settlement.



3.3 Social and Economic Baseline

3.3.1 Demography

The proposed site for the Sichei Level VI Hospital is located in Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Kabuchai Constituency, Bungoma County. According to the 2019 Kenya Population and Housing Census by the Kenya National Bureau of Statistics, Bungoma County has a population of approximately 1,670,570 people, with about 358,796 households and an average household size of approximately 4.7 persons. The county has a relatively high population density of approximately 552 persons per square kilometre, reflecting predominantly rural settlement patterns with expanding peri-urban growth around Bungoma town and major transport corridors.

Kabuchai Sub-County, within which the site is situated, is characterized by mixed rural and peri-urban settlement patterns. Livelihoods are largely based on small-scale agriculture, livestock keeping, informal trade, boda boda transport services, and employment within public institutions such as schools and health

facilities. The proximity of the site to existing educational and training institutions, including Sichei KMTC and FYM Comprehensive School, contributes to localized population concentration during peak hours and reinforces the area's role as an emerging institutional and service node.

Settlement patterns around the proposed site are generally low to medium density, characterized by individual homesteads, agricultural plots, and linear development along access roads. Population concentration increases toward Bungoma town and Kanduyi centre, where commercial and administrative activities are more established. There are no known high-density informal settlements immediately adjacent to the site, and surrounding land use appears stable and long-standing.

Community interactions and local stakeholder sentiments indicate broad support for the proposed Level VI Hospital. Anticipated benefits include improved access to specialized healthcare services within Bungoma County, employment opportunities during construction and operation phases, stimulation of local economic activity, and enhancement of supporting infrastructure such as roads and utilities. At this stage, no significant concerns regarding displacement, land ownership disputes, or inter-community tensions have been identified.

3.3.2 Water Supply

The proposed hospital will not rely on rainwater harvesting alone but will be provided with water storage tanks of at least 130,000 litres in total capacity. The project site is situated in Mukuyuni ward, Kabuchai Sub County (Bungoma Central). Water Supply Project serving the area is a twin water supply;

1 Kibichori Bokoli

2 Nakayonjo

The latter, Nakayonjo WS was constructed in 2011 to augment Kibichori Bokoli Water Supply constructed earlier in 1978. The two projects share the same abstraction point on river Kuywa/Terem at Kapsambu, while the treatment plant is in Kapkateny, approximately 2kms from intake works at Kapsambu.

1. For efficiency in water supply consistently; the facility is required to have its own water storage of at least 200m³ constructed. This should be factored in the implementation budget for facility construction. The constructed tank can be used as a storage and feeder tank to other user points within the facility.

2. The facility should have a borehole as a back-up source of water; in the event the supply is stopped due to some failure, damage or routine system maintenance to ensure continual supply of water.

A thorough and comprehensive survey is recommended while prospecting for Ground water since the area has minimum groundwater potential; basing on the available data from nearby boreholes. The nearest borehole within the KMTC, Chwele Campus has a low yield.

3.3.3 Power Supply and Distribution

The project site adjacent location is currently served by a 100 kVA, 33 kV/415 V pole-mounted transformer supplying the adjacent KMTC institution and surrounding community. This confirms the presence of medium-voltage grid infrastructure at the site and provides an existing interface point for electricity supply. Preliminary energy demand modelling for a Level VI hospital indicates that this infrastructure was designed for lower institutional loads and will require upgrading to support the hospital's operational requirements, including advanced diagnostic equipment, centralized HVAC systems, sterilization facilities, and 24-hour hospital services. Energy consumption within the hospital is distributed across major end-use categories, as summarized below.

No.	Time Period	Estimated Load Level	Key Activities and Equipment Drivers
1	00:00 - 05:00	Base Load (Low)	ICUs, Renal Unit, Emergency Department (A&E), security lighting, vaccine refrigeration
2	05:00 - 08:00	Ramping Up	Kitchen and laundry operations, ward lighting, commencement of sterilization (CSSD) cycles

No.	Time Period	Estimated Load Level	Key Activities and Equipment Drivers
3	08:00 - 13:00	Peak Demand	Full surgical theaters, Radiology (MRI/CT), laboratory equipment, administrative offices
4	13:00 - 14:00	Slight Dip	Reduced elective clinical and office activity during lunch hour
5	14:00 - 17:00	Secondary Peak	Continuation of surgeries, diagnostic services, outpatient clinics
6	17:00 - 21:00	Evening Shift	Extensive lighting (corridors and external), evening ward rounds, heating systems
7	21:00 - 00:00	Ramping Down	Shift change, shutdown of non-essential lighting and administrative equipment

3.3.4 Transport

The site is located approximately 18.9 km from Kanduyi town, which sits strategically along the A104 highway corridor and serves as a key access node within Bungoma County. Kanduyi provides linkage between Bungoma town and the wider regional road network, supporting movement of people, goods, and services within the county and beyond.

Access to the site is achieved through two primary road corridors. The first route is via the Chwele-Kimilili-Kamukuywa (C42) road, from which the site is accessed approximately 2 km from the main road junction. The second route is via the Kanduyi-Kimilili Road, with the site located approximately 5.8 km from the junction along this corridor. These routes provide flexibility in accessing the site from different directions within Bungoma County and support both local and regional connectivity.

The site is directly linked to these corridors by an access road that is currently in murram condition. Plans are underway for the county government of Bungoma to upgrade the access road to bitumen standards to support construction traffic and long-term operational demands associated with the proposed development.

Kanduyi -Kimili road conditions



Murram road access



3.3.5 Communication

The whole Bungoma is served by multiple mobile network operators, providing 3G and 4G/LTE and 5G (Within Bungoma CBD) coverage for voice and data services.

Mobile broadband currently supports general communication needs and offers a degree of connectivity redundancy within the area.

While mobile broadband contributes to overall connectivity availability, it is not suitable as a primary broadband solution for a Level VI hospital due to inherent limitations related to latency, capacity, and service stability for mission-critical health systems.

3.3.6 Local Land Uses

Land surrounding the site is largely undeveloped or under low-intensity use. There is limited presence of industrial or high-density commercial activities in the immediate vicinity. The proposed Sichei Level VI

Hospital site is located within a predominantly low-density, rural-neighbourhood around Sichei village, characterized by a mixed-use landscape comprising residential settlements, educational institutions, and agricultural land. The immediate surroundings include low-rise residential homes, and expansive open land under active farming, confirming the site as a Greenfield location with minimal prior disturbance. Educational facilities in the vicinity contribute to localized pedestrian and vehicular activity during peak hours.

The site is visually open, with views toward adjacent open land under agricultural use. No incompatible land uses were identified adjacent to the site at the time of assessment.

3.3.7 Grievance Redress Mechanism

The contractor will employ a Community Liaison Officer and or sociologist who will be responsible for collating written complaints and co-coordinating responses to all complaints. Both verbal and written complaints are to be entered into a Grievance Complaint Log as addressed

When receiving a complaint all employees shall refer the complainant to the Community Liaison Officer (CLO) or the resident engineer. The person receiving a complaint shall ensure that the Grievance Complaint Log is completed. The form shall then be forwarded to the Community Liaison Officer who will assign it a number. The Community Liaison Officer shall ensure that all actions are made to close out the complaint.

Information on proposed corrective action sent to complainant (if appropriate); the date the complaint was closed out; and Date response sent to complainant. All complaints shall be responded to in writing, though a verbal response will be provided as well if this is more appropriate in the circumstances (e.g., where the complainant cannot read). All complaints must be responded to within two weeks of being received, even if the response is just a summary of what is planned and when it is likely to be implemented. Further correspondence should be given once the complaint is closed out.

The CLO through the contractor will be responsible for providing the Project Management Team (PMT) and relevant County/NEMA authorities with a monthly report detailing the level of complaints and any outstanding issues to be addressed. Monthly reports will include analysis of the type of complaints, levels of complaints and action taken to reduce complaints. The CLO shall file all documentation related to complaints in a file in his office. A fully detailed Grievance Redress Mechanism -- including separate channels for employees and community members, entry points, escalation procedures, confidentiality safeguards, SEA/SH-sensitive reporting channels, and record-keeping -- is presented in the Grievance Redress Management Plan (Appendix 5) and the Stakeholder Engagement Plan (Appendix 8).

In practice, the GRM operates through two main channels. Employee grievances are raised first through the Human Resources office or site/hospital management, with escalation to the relevant labour authorities (Directorate of Occupational Health and Safety Services, Labour Officer) or the Employment and Labour Relations Court if unresolved at the workplace level. Community grievances are raised through a Project Grievance Redress Committee involving local administration and community leadership (including the area chief/assistant chief, local elders, and community representatives), which reviews and seeks to resolve complaints at the project level. Where a grievance remains unresolved after exhausting these project-level mechanisms, the aggrieved party retains the right to escalate the matter to the Environment and Land Court. Full procedural detail, including timelines, forms, and confidentiality safeguards, is provided in the Grievance Redress Management Plan (Appendix 5) and the Stakeholder Engagement Plan (Appendix 8).

Baseline Studies Deferred to Detailed Design

Three baseline studies were not carried out at this stage and are deferred to detailed design. They are stated here, in the baseline chapter, so that the limits of the baseline presented above are explicit at the point of use; the same table is carried in the Executive Summary. Each study is a line item in the Environmental and Social Management and Monitoring Plan, is a responsibility of the Proponent, and its completion is reported to the African Development Bank through the

quarterly safeguard report. None of the three alters the impact ratings assigned in this report: the traffic and household socio-economic studies refine the design of mitigation rather than establish whether it is needed, and the site is classified as modified habitat on the basis of its present use as institutional land under cultivation, which the biodiversity screening is to confirm rather than determine.

The baseline presented in this chapter is supported by field-measured ambient noise data, by an extrapolated air quality baseline with a time-bound commitment to confirmatory site-specific monitoring (Appendix 7), and by a geotechnical and seismic siting assessment. Three further baseline studies are not required to characterise the receiving environment for the purposes of this assessment and are deferred to the detailed design stage. They are stated explicitly below with their scope, responsible party and timing so that the commitment is auditable. None of the deferred studies is capable of altering the impact significance ratings or the conclusions of this ESIA; each serves to refine the design and the monitoring baseline.

Deferred baseline study	Scope	Responsible party	Timing	Purpose and use of the data
Traffic baseline survey	Classified turning counts at the site accesses and at the Chwele-Bungoma and Kanduyi road junctions serving the site; peak-hour flows; queue length and journey-time survey; heavy goods vehicle proportion; school and market movement times for the KMTC and Sichei FYM school frontages	Proponent, through a qualified transport consultant, with the Bungoma County Engineer	Detailed design stage, and in any event before approval of the Contractor's Traffic Management Plan	To calibrate the Traffic Management Plan and the site access design, and to set the baseline against which operational trip generation is monitored
Biodiversity screening survey	Walkover habitat survey of the site and a 500 m buffer, including the Mount Elgon foothill drainage lines; flora and fauna species list; screening against protected and priority species; confirmation of the absence of critical habitat	Proponent, through a qualified ecologist	Detailed design stage, and in any event before any vegetation clearance	To confirm the modified-habitat classification applied in this ESIA, and to inform the revegetation and landscaping specification
Household socio-economic survey	Structured household survey of Sichei village and the settlements within the area of influence; income, livelihood and service access profile; vulnerable-group identification (women-headed households, persons with disabilities, older persons, low-income households); local labour availability	Proponent, through a qualified social specialist, coordinated with the Stakeholder Engagement Plan (Appendix 8)	Detailed design stage, and thereafter repeated at the Year-1 environmental audit	To refine the vulnerable-group analysis, to target local recruitment and community investment, and to establish the socio-economic baseline for monitoring

Each deferred study is carried as a line item in the Environmental and Social Management and Monitoring Plan, is a responsibility of the Proponent, and its completion is reported to the Bank through the quarterly safeguard report. Where a deferred study identifies a condition materially different from that assumed in this ESIA, the assessment will be revisited and the Bank notified.

4. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Development of infrastructure Projects such as the Proposed Construction of level 6 Bungoma hospital Project is guided by several laws, by-laws, regulations, Acts of Parliament as well as policy documents. This objective of this section is to assess the existing Policies and Legislative Framework, Economic Tools and Enforcement Mechanisms for the Management of Infrastructure Projects at different stages.

4.1 Policy Framework

Table 1: Policy Framework

#	Policy	Provision	Relevancy
1.	National Environmental Policy, 2013	The policy promotes the use of Environment assessment tools such as ESIA/EA necessary to ensure environmental quality and resource productivity on long term basis. Further it calls for management in use of hazardous and toxic chemicals as well as radiation regulations.	The Policy requires that projects which are likely to have significant environmental and social impacts to undergo ESIA in order to establish sound environmental and social management practices.
2.	The National Occupational Safety and Health Policy, 2012	The Policy seeks to reduce the number of work-related accidents and diseases, and equitably provide compensation and rehabilitation to those injured at work or who contract occupational diseases.	The policy requires the provision of appropriate and adequate PPE, avail First Aid services on site as well as development of Safety and Health Emergency Contacts at the site and workplace registration.
3.	Kenya Health Policy 2012 – 2030	The Policy aim is to achieve this goal through supporting provision of equitable, affordable and quality health and related services at the highest attainable standards and minimize exposure to health risk factors to all Kenyans.	The Policy calls for the provision and distribution of healthcare services to all people that is commensurate with that of a middle-income country without segregation.
4.	National Plan on Healthcare Waste Management 2016-2021	Provides a viable technical and management options as well as a roadmap for the domestication of the National HCWM Strategic Plan 2015 -2020. Strategic planning for HCWM covers waste handling, storage, transportation, treatment, and disposal, capacity-building and awareness creation. This is to prevent, reduce and mitigate the likely risks of transmission of infections.	The policy requires the hospital to have best waste management practice
5.	National Guidelines for the Management of COVID -19 Wastes, 2020	The Environmental Management and Coordination (Waste Management) Regulations of 2024, has clear provisions on the management of biomedical waste. The provisions relate to segregation of biomedical waste, securing, packaging, storage and disposal of all generated medical waste within the country, to ensure proper waste disposal the main methods used are microwaving, incineration, shredding, and chemical disinfection.	The GIIP best practices in HCWM specifically wastes generated from the cancer centre and treatment centres. This GIIP standard applies broadly across all specialised healthcare waste streams generated by the hospital - including cytotoxic/chemotherapy waste, pharmaceutical, pathological, and other hazardous clinical waste - and is not limited only to cancer treatment centres.

4.2 Regulatory Framework

Table 2: Regulatory Framework

#	Legislation	Provision	Relevancy
1.	The Constitution of Kenya, 2010	Article 42 of the Bill of Rights of the Kenyan Constitution provides that _every Kenyan has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures. Part 2 of Chapter 5 is dedicated to Environment and Natural Resources where Article 69 in Part 2 provides that the state shall; (v) Establish systems of environmental impact assessment, environmental audit and monitoring of the environment; In addition, Article 43 (1 provides that every person has the right to the highest attainable standard of health, which includes the right to healthcare services, including reproductive health care, accessible and adequate housing, and to reasonable standards of sanitation and to clean and safe water in adequate quantities.	The project should ensure compliance with the Constitution on issues of environmental protection and safeguard of public health through provision of more comprehensive health services to every citizen.

#	Legislation	Provision	Relevancy
2.	National Infection Prevention and Control Guidelines for Healthcare Services, 2015	Provides comprehensive standardized information regarding the prevention and control of transmissible infections. It acts as a central reference for all healthcare facilities and healthcare workers. The guideline is intended to provide administrators and Healthcare Workers with the necessary information and procedures to implement Infection Prevention Control (IPC) core	The project shall be reference for all healthcare facilities and workers with the necessary information and procedures of managing, handling and disposal of healthcare wastes to avoid infections. Considered installation of microwave will help reduce

		activities.	the volume of wastes generated at the hospital.
3.	Environmental Management and Coordination Act, 1999 (Amendments 2015)	The Act empowers the NEMA to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of government in the implementation of all policies related to the environment. The Second Schedule to the Act specifies the projects for which an ESIA or environmental audit must be carried out.	The project shall comply with the provisions of this regulation on issues related to environmental assessment, solid waste and wastewater management, emissions, noise and vibrations among others.
4.	Environmental (Impact Assessment & Audit) Regulations, 2019	This regulation provides guidelines to govern the conduct of Environmental Assessment and Audits in Kenya. Section 3 indicates that the regulations apply to policies, plans, programs, projects and activities specified in Part IV, Part V and 2nd schedule of the Act	Environmental Assessment is being carried out for the project and appropriate mitigation measures shall be proposed commensurate with the scale of the project E&S aspects.
5.	Environmental Management & Coordination (Waste Management) Regulations, 2024	The regulations provide guidelines on waste management (handling, storage, transportation, treatment and disposal) of various waste streams including domestic waste, industrial waste, hazardous and toxic waste, pesticides and toxic substances, biomedical wastes; and radioactive wastes.	The project will generate highly infectious waste (15-25%) and hence expected to comply with the requirements of this regulation in management of HCW. The proponent must observe this law strictly in the operation of the hospital waste by applying for the necessary licenses to operate the waste treatment equipment.
6.	Environmental Management & Coordination (Air quality) Regulations, 2014	Provide for the prevention, control and abatement of air pollution to ensure clean and healthy ambient air. Part II sections 5 to 9 prohibit compromise of the ambient air quality levels specified in the first and third schedules of the regulations. Section 11 of the regulations prohibits offensive emissions into controlled areas (national parks, schools, hospitals, residential areas and populated urban centres) Section 33 prohibits any person from causing/allowing emissions of particulate matter during demolition of structures while section 34 prohibits any person from allowing stock piling of material to cause effect to ambient air quality. Further, section 35 prohibits operators of the incinerators to cause emission of air pollutants as set out in second schedule more than mass emission rates indicated in third schedule of the regulations.	The project contractor during the construction will abide with sections 33 & 35 of these regulations. Management of the Hospital will apply for the license to own and operate a waste treatment facility.
7.	Environmental Management and Coordination (Water Quality) Regulations, 2024	The regulation provides guidelines for the protection of sources of water for domestic use, water for industrial use and effluent discharge as well as water for agricultural use. Part II section 6 prohibits any person from discharging effluent from sewerage works, industry or other point sources into aquatic environment, abstract ground water near lakes, rivers, streams, springs and wells that is likely to have any adverse impact on quality and quantity of the water without an environmental impact assessment license.	The proponent will ensure that the appropriate measures to prevent pollution of underground water and surface water sources are implemented in all project phases such as channelling all wastewater effluent from the waste treatment area to the septic tank system and undertake periodic monitoring of the waste effluent from the HCF to ensure compliance with the acceptable standards. Necessary water supply or wastewater discharge permits, and compliance with such permits shall also be sought,

		activities.	the volume of wastes generated at the hospital.
8.	Environmental Management & Coordination (Noise and Excessive Vibration Pollution) Regulations, 2009	Part II section 3(i) of these Regulations states that: no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment and section 3(2) states that in determining whether noise is loud, unreasonable, unnecessary or unusual depends on; (i) the time of the day, (ii) proximity to residential area (iii) whether the noise is recurrent/constant, level/intensity of noise.	The contractor will be required to take into consideration monitoring of the noise and vibrations levels within the hospital during construction period to ensure compliance.
9.	Public Health Act (Cap 242) revised 2012	Part III of the Public Health Act provides for the protection of human health through prevention and guarding against introduction of infectious diseases into Kenya from outside, to promote public health and prevention, limitation or suppression of infectious, communicable or preventable disease within Kenya. The Public Health (Prevention, Control and Suppression of Covid-19) Rules, 2020 provides additional regulatory impetus to this part.	The proponent will adhere to the act.
10.	The Health Act, 2017	It formalizes collaboration between national and county governments, obliges Kenya to address the health needs of vulnerable groups, and mandates the provision of emergency and specialized care. In a progressive step, the law also ensures the provision of free maternity care, vaccinations for children under	The collaboration between MoH and the County Government of Bungoma in the implementation of project is within the provisions of this Act. All interests of the aged, women, children and PLWD should be observed in the implementation

		age five, and workplace breastfeeding facilities. It further seeks to safeguard access to healthcare services for vulnerable groups by making clear the state's obligation to provide these for women, the aged, persons with disabilities, children, youth, and members of minority or marginalized communities. The Act also requires that the national health system ensures that measures for managing environmental risk factors to curtail occurrence and distribution of diseases are put in place and implemented.	and operation the project via the provision of PLWD friendly facilities, protecting the welfare of children, respecting women and the aged. The project management, the benefiting facility and the contractor shall ensure the provisions of the Act relating to the promotion and advancement of public and environmental health are adhered to during the project implementation.
11.	Physical Land Planning and Use Act, 2019	The County Governments are empowered under Section 29 of the Act to prohibit or control the use and development of land and buildings in the interest of proper and orderly development of an area.	The collaboration between MoH and the County Government of Bungoma is required to seek developments approval from the County Physical planning departments for the civil works (construction activities).
12.	Work Injuries Benefits Act, 2007	This Act provides for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes.	The contractor shall comply with part II of this act about obligations of the employer including Compensation for temporary total or partial disablement, treatment as well as provision of first Aid Services to workers always.
13.	Occupational Safety and Health Act, 2007	This is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces. It applies to all workplaces where any person is at work, whether temporarily or permanently	All Safety and Health measures should be in place to ensure workers and the neighbouring communities are not exposed to Safety and Health risks during project construction, operational and decommissioning phase namely: provision of appropriate PPE, training of workers, appointing health and safety committees and safety advisor where there are civil works, keeping incident logs and reporting to DOSHS and WB, registering work place and screening off active construction site.
14.	HIV/AIDs Prevention and Control Act, 2006	Part 11 Section 7 requires HIV and AIDs education in workplaces; specifically, provision of basic information and instruction on HIV/AIDS prevention and control	During the construction phase, the contractor is largely expected to create awareness to the employees and local community on issues related to HIV/AIDs.

		age five, and workplace breastfeeding facilities. It further seeks to safeguard access to healthcare services for vulnerable groups by making clear the state's obligation to provide these for women, the aged, persons with disabilities, children, youth, and members of minority or marginalized communities. The Act also requires that the national health system ensures that measures for managing environmental risk factors to curtail occurrence and distribution of diseases are put in place and implemented.	and operation the project via the provision of PLWD friendly facilities, protecting the welfare of children, respecting women and the aged. The project management, the benefiting facility and the contractor shall ensure the provisions of the Act relating to the promotion and advancement of public and environmental health are adhered to during the project implementation.
15.	The County Government Act No. 17 of 2012	Part II of the Act empowers the county governments to oversee planning by coordinating and ensuring integrated planning within the county.	The collaboration between MoH and the County Government of Bungoma is required to seek development approval from the County Physical planning departments for the civil works (construction and installation activities).
16.	National Construction Authority Act, 2011	The National Construction Authority Act 2011 seeks to regulate the construction industry and coordinate its development	Management of the Hospital (MoH) shall liaise with NCA to ensure licensed contractors are the ones to be awarded contract to install the microwave at the hospital.
17.	The Employment Act 2007	The Act stipulates that no person shall use or assist any other person, in using forced labour. The Act further states that it shall be the duty of the Cabinet Secretary/ Minister, Labour officer, the National Labour Court and the subordinate labour courts to; Promote equality of opportunity in employment in order to eliminate discrimination in employment Promote and guarantee equality of opportunity for a person who, is a migrant worker or a member of the family of the migrant worker lawfully within Kenya. Other clauses include the right and Duties of employment including the basic minimum and condition of contract including the Maternity Leave.	The proponent, contractor and the employees to be engaged in the proposed project stands guided on labour relations that at times have negative and detrimental impacts on project implementation if poorly handled.
18.	The Disability Act 2010	An Act to provide for the establishment of a National Council for Disability, its composition, functions and administration for the promotion of the rights of persons with disabilities set out in international conventions and legal instruments, the Constitution and other laws, and for other connected matters.	People with disability interest including access to the healthcare facilities will be catered for including the ramp, abolition and WASH facilities, as well as access to employment and healthcare services.

4.3 Compliance to Applicable Kenya EHS Regulatory Requirements

The proponent will ensure adherence to the applicable EHS regulatory requirements as laid out in the EMCA Waste Management Regulations, 2024, Occupational Safety and Health Act of 2007 together with the EHS requirements of the subsidiary legislation on Workers Injury and Benefits Act. Important also to note is that the Proponent will be required to ensure that this ESIA and ESMP forms part of the contract document and the main contractor prepares a contractor specific Environment and social management plan and includes adequate measures to promote safety and health of workers and community during the construction phase of the proposed project. The contractor is expected to handle issues of occupational health and safety and community health and safety especially during construction phase of the project. The proponent will handle the same issues during the operational phase. The proposed hospital, once operational, will be required to comply with all applicable Kenya EHS regulatory requirements on medical waste treatment and disposal, as set out under the policy and regulatory framework reviewed in Section 4 of this report. Compliance will be verified on an ongoing basis through the NEMA licensing process and the annual Environmental Audit process, which will assess conformance with licence conditions and applicable EHS regulations throughout the operational life of the facility.

4.3.1 Specific EHS Permits/Authorizations/Reporting Needed for the Construction Activities at Bungoma

- ESIA License from NEMA to construct and install the medical waste treatment microwave.
- MoH to liaise with NCA to ensure licensed contractors are the ones to be awarded the contract to construct

the level 6 hospital

- Need to acquire the necessary workers' insurance as per the provisions of the WIBA, 2007
- Development approval/permits from the Bungoma County Physical planning departments for the civil works (construction and renovation activities).
- Provision of appropriate PPE, training of workers, appointing health and safety committees and safety advisor, registering workplace with DOSHS and screening off active construction / renovation.
- Report any accident that has occurred to the Directorate of Occupational Health and Safety Service within 24 hours from the date of occurrence or receiving notice.
- In addition to the above, the Proponent and/or Contractor shall be required to prepare and submit periodic Environmental Audit reports to NEMA, as required under EMCA (Cap. 387) and the conditions of the NEMA licence issued for the project, including self-audit reports during construction and annual Environmental Audits during operation. Compliance obligations under the EHS permits and the NEMA licence shall also extend to any future expansion of the facility and to the eventual decommissioning phase, at which point a decommissioning environmental audit and updated ESMP will be required to address demolition waste, site restoration, and safe disposal or transfer of any residual hazardous materials.

4.3.2 Specific EHS Permits/Authorizations/Reporting Needed for the Operation of the hospital

- Apply for the licenses to own and operate the MWTM from NEMA
- Need to acquire the necessary insurance of healthcare waste handlers as per the provisions of the WIBA, 2007
- Bungoma hospital management to report any accident to the Directorate of Occupational Health and Safety Service within 24hrs from the date of occurrence or receiving notice.

4.4 Institutional Framework

Some of the institutions relevant to the proposed project are presented on Table 3.3 below:

Table 3: Institutional Framework

#	Institution	Provision	Relevancy
1.	National Environment Management Authority (NEMA)	The responsibility of NEMA is to supervise and co-ordinate all matters relating to the environment and to be principal instrument of government in the implementation of policies relating to the environment.	The construction of level 6 Hospital is a major construction activity and thus it shall undertake the ESIA and the report submitted to NEMA for review and issuance of License. NEMA also has the mandate for solid waste management, including hazardous waste and medical waste management as well as the licensing of waste handling activities.
2.	Ministry of Health	The proposed project is under the MoH and it shall be the primary role of the Ministry to monitor and measure the progress of implementation of the social and environmental safeguards.	The Ministry, through the hospital management shall prepare periodic reports, which shall be submitted to the African Development Bank for review and further action shall be taken.
3.	County Government	The County Government has powers to control or prohibit all businesses, factories and other activities including the proposed project which may become a source of danger, discomfort or annoyance to the neighbourhood and to prescribe conditions subject to which such activities shall be carried.	County Government shall supervise the project roll out through the technical team to ensure no activity being implemented may become a source of danger, discomfort or annoyance to the neighbourhood.
4.	Directorate of Occupational	The mandate of the Directorate is to ensure compliance with the provisions of the Occupational	The Hospital shall need approval from DOSHS. Note that the hospital is already in use and it has the occupation /

#	Institution	Provision	Relevancy
	Safety and Health Services (DOSHS)	safety and health Act 2007 and promote safety and health of workers.	workplace certificate for the premises.
5.	The National Construction Authority (NCA)	The NCA is responsible for issuing permits to construction sites and advising the government of Kenya on construction.	The Management of the Hospital shall liaise with NCA to ensure licensed contractors are the ones to be awarded contract to construct the hospital.
6.	The African Development Bank	The African Development Bank (AfDB), in line with the Project Environment and Social Commitment Plan and other environment and social instruments prepared for the project including the ESMF, LMP and SEP, is duty bound to undertake periodic monitoring of the project implementation.	The Bank's implementation support mission shall be periodically done to ascertain the level of implementation of the project.

4.5 Relevant Social Statutes

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

Table 4: Relevant Social Statutes

Social element	Legal/Regulatory framework	Institutional framework	Relevance
Gender-based violence and SEA	- Sexual Offences Act, 2006 - Penal Code - HIV/AIDS Prevention and Control Act 2000 - Protection Against Domestic Violence Act, 2015 - Prohibition of Genital Mutilation Act, 2011 - National Gender and Equality Act, 2011	- The State Departments of Gender in the Ministry of Public Service and Gender - National Gender and Equality Commission (NGEC)	- Abuse by workers (both foreign and national), normalization of GBV and lack of interest, stigma leads to non-reporting, poverty forces women/girls to engage in transactional sex - Lack of access to services to address SEA, stigma, corruption.
Public participation and consultations	- CoK, 2010, Article 10(2) a, b - County Public Participation Guidelines³	- Every state actor is required to apply the national values and principles whenever they formulate, implement or interpret laws and policies - A complementary right is the right to access information in Article 354	- The project will put measures in place to consult communities on the project. The use of alternative means of consultation such as call-in will to be used to engage communities - CoK 2010 confers all the sovereign power to the people of Kenya and it is exercised through delegated power by the State actors⁵
Grievance redress mechanism	- Employment Act in Part XII - Employment and Labour Relations Court Act - Labour Relations Act	- State Department of Labor (MLSP) - National Employment Authority - Kenya National Labor Board - Wages Council(s) - Directorate of Occupational Safety and Health Services - National Council for Occupational Safety and Health (NACOSH) - Commission for the Administration of Justice - Ministry of Health	- There is need have an elaborate GRM that will allow the PMT to manage grievances related to the project especially for the workers. However, in case the complainant is dissatisfied with the decision made, he/she can make use of any of other institutions with a mandate to address disputes.

4.6 African Development Bank Environmental and Social Standards

This section is applied with reference to the African Development Bank Group's Integrated Safeguards System (ISS, 2023) and its ten Environmental and Social Operational Safeguards (OS1-OS10), available at <https://www.afdb.org/en/documents/african-development-bank-groups-integrated-safeguards-system-2023>.

The African Development Bank (AfDB) will support the Borrower to manage the risks and impacts of the projects, and improve their environmental and social performance, through a risk and outcomes-based approach. This will ensure that proposed programs are environmentally and socially sustainable, and thus improve decision-making. The relevant Environment and Social Safeguards to the project are outlined below:

³County Public Participation Guidelines, pg. (vii)

⁴ Article 35(1)(a) and (b)

⁵ Article 1 of the Constitution of Kenya

Table 5: African Development Bank Environmental and Social Standards relevant to the project

#	ESSs	Relevant		Reason
		No	Yes	
1.	Assessment and Management of Environmental and Social Risks and Impacts		X	Environmental Assessment (EA) is used in the AFDB to identify, avoid, and mitigate the potential and actual negative environmental impacts associated with Bank lending operations. Environmental and Social risk associated with the project was initially classified as –High risk since Kenya has limited experience in managing the highly infectious medical waste; however, this has since been downgraded to –Substantial based on the overall project performance improvement. The level 6 hospital construction during construction and operation phase may cause significant environmental, social, Safety and Health risks due to the dangerous nature of the wastes especially Biomedical wastes. Healthcare associated infections due to inadequate adherence to OSH standards can lead to illness and death among healthcare workers. Environmentally and socially sound healthcare will require adequate provisions for minimization of OSH risks, proper management of hazardous waste and sharps, use of appropriate disinfectants and appropriate chemical and infectious substance handling.
2.	Labor and Working Conditions		X	Most activities supported by the project will be conducted by health workers, i.e., civil servants employed by County Government and Government of Kenya as well as the contracted workers for the Contractor. All workers will have orientation on and sign a code of conduct on expected behavior and safety standards including GBV/SHEA risks. In line with AFDB as well as the Kenyan law, the use of child labour and forced labour is prohibited in the project, both for construction and operation of healthcare facilities. The project will also ensure a basic, responsive GRM to allow workers to quickly inform their immediate management of labor issues, such as a lack of PPE and unreasonable overtime as well as to the national grievance hotline to the MoH.

#	ESSs	Relevant		Reason
		No	Yes	
3.	Resource Efficiency and Pollution Prevention and Management		X	Electricity from the National Grid will be connected to the Proposed site. It is advisable that electrical meter for the hospital facility will be installed for purposes of monitoring energy consumption, The handling of the medical and chemical waste (including waste water, reagents, infected materials, etc.) can have significant impact on environment and human health. Waste that may be generated from the hospital may include chemicals and other bio-hazardous materials, and other waste from hospital including of sharps, used in diagnosis and treatment. This ESIA has been prepared and identified the possible ways to prevent and mitigate the potential pollution to the environment (increased water use and liquid waste among others) see Table 9 (ESMP).
4.	Community Health and Safety		X	In line with safety provisions , it is equally important to ensure the safety of communities and Medical wastes and general waste from the hospital has a high potential of carrying micro-organisms that can infect the community at large if they are not properly disposed of. The disposal of masks and gloves at the hospital will need to be managed adequately to avoid secondary contaminations. The project will ensure the avoidance of any form of Sexual Exploitation and all forms of Abuse by relying on the WHO Code of Ethics and Professional conduct for all workers as well as the provision of gender-sensitive infrastructure such as segregated toilets and enough light. In as much as possible, measures should be put in place to have separate wash, meal, relaxation areas and sanitary conveniences for men and women. The project will also ensure via the above noted provisions, including stakeholder engagement, that the hospital is operated effectively without aggravating potential conflicts between host communities and patients.

Gap Analysis: National Requirements and the AfDB Integrated Safeguards System (2023)

This ESIA has been prepared with reference to the African Development Bank Group's Integrated Safeguards System (ISS, 2023) and its ten Environmental and Social Operational Safeguards (OS1-OS10) (<https://www.afdb.org/en/documents/african-development-bank-groups-integrated-safeguards-system-2023>). The table below summarises the alignment between applicable national requirements and the ISS (2023), identifies gaps, and states how the project bridges them. Where national and Bank requirements differ, the project commits to applying the more stringent requirement.

Thematic area (ISS OS)	National requirement	AfDB ISS (2023) requirement	Gap	How the project bridges the gap
E&S assessment and management (OS1)	EMCA (1999, am. 2015) and the EIA/Audit Regulations require a licensed ESIA and annual environmental audits	Risk-based categorisation; assessment of direct, indirect, induced and cumulative impacts; E&S management system	Cumulative/induced assessment and residual-risk analysis not expressly required nationally	Impact Assessment Methodology, Cumulative and Induced Impacts, and Residual Impact and Risk Assessment sections of this ESIA; ESMMP
Labour and working conditions (OS2)	Employment Act 2007; Occupational Safety and Health Act 2007; Work Injury Benefits Act	Labour management procedures; worker grievance mechanism; prohibition of child/forced labour; Codes of Conduct	Project-level labour management procedures and a dedicated worker grievance channel are not mandated nationally	Labour Management Plan required of the contractor under the C-ESMP; worker GRM; signed Codes of Conduct incl. GBV/SEA provisions; child-labour controls and signage

Thematic area (ISS OS)	National requirement	AfDB ISS (2023) requirement	Gap	How the project bridges the gap
Resource efficiency and pollution prevention (OS3)	EMCA Waste Management, Water Quality, Air Quality and Noise Regulations	Resource efficiency, quantified waste streams, GIIP-based pollution prevention	Broadly aligned; ISS additionally expects quantification and GIIP benchmarking	Quantified waste projections; non-burn treatment technology per GIIP; WBG EHS Guidelines applied as technical benchmarks
Community health, safety and security (OS4)	Public Health Act (Cap 242); county public-health enforcement	Emergency preparedness and response; community exposure management; security-force conduct	Facility-level emergency preparedness beyond fire safety is not expressly mandated for the construction phase	Emergency Preparedness and Response Plan (annexed); Traffic Management Plan; community engagement and GRM
Land acquisition and resettlement (OS5)	Land Act and Constitution provisions on compulsory acquisition	Avoidance/minimisation of involuntary resettlement; compensation at replacement cost	No involuntary resettlement is anticipated: the site is public institutional land	Land status documented in the Project Description; should any land-related impact emerge, OS5 standards will be applied
Biodiversity (OS6)	EMCA conservation provisions; Wildlife Conservation and Management Act	Screening against modified/natural/critical habitat; no-net-loss principles	Site is modified habitat (agricultural/institutional); no critical habitat identified	Baseline flora/fauna description; revegetation with indigenous species; chance-find procedure for cultural heritage
Stakeholder engagement and disclosure (OS10)	Constitution Art. 69-70 and EIA Regulations public participation requirements	Stakeholder mapping; meaningful, documented consultation; continuing engagement; project-level GRM; disclosure	National requirements centre on one-off ESIA consultation; ISS requires engagement across the project cycle	Stakeholder Engagement Plan (annexed) with mapping, methods and monitoring; documented minutes/attendance ; standalone GRM with SEA/SH-sensitive channels

Institutional Capacity Assessment and Capacity Strengthening

The principal implementing institutions for the environmental and social commitments in this report are the Ministry of Health (MoH), supported by the County Government of Bungoma; the Project Management Team (PMT); the supervising consultant; the works contractor; NEMA and the Water Resources Authority as regulators; and the hospital management during operation. Their capacity to deliver the ESMMP has been assessed as follows.

Institution	Role	Capacity assessment	Strengthening measure
MoH / PMT	Overall proponent obligations; safeguard reporting to the Bank; ESMMP oversight	Experienced with development-partner safeguard requirements from prior health projects; PMT safeguard staffing to be confirmed at mobilisation	Designate a project Environmental and Social Officer and a Community Liaison Officer before construction mobilisation
County Government	Public health enforcement; physical planning; county approvals	Established environment and public health offices; limited exposure to Bank ISS procedures	ISS orientation for county focal officers; inclusion in quarterly project safeguard meetings
Contractor	Implementation of construction-phase mitigation via the C-ESMP	To be procured; capacity variable across the market	C-ESMP (incl. OSH, waste, labour, HIV/AIDS plans) as a condition precedent to works; full-time contractor EHS officer; supervising consultant approval and oversight
NEMA / WRA	Licensing, inspections and enforcement	Functional regional offices; inspection frequency constrained by resources	Proponent-funded compliance monitoring and annual environmental audits submitted to NEMA
Hospital management (operation)	Operational ESMMP, healthcare waste management, OHS and emergency response	To be established during commissioning; specialised HCWM and IPC skills required	Recruitment of HCWM/IPC focal staff before commissioning; training programme per the MWMP and EPRP; standing safety and waste committees

Capacity Strengthening Plan: (i) appointment of the project E&S Officer and Community Liaison Officer before mobilisation; (ii) contractor EHS staffing and an approved C-ESMP as conditions precedent to commencement of works; (iii) a training programme covering healthcare waste management, infection prevention and control, occupational safety, GBV/SEA prevention and referral, chance-find procedures and GRM operation; (iv) budgetary provision for E&S staffing, training and monitoring within the costed ESMMP; (v) defined reporting lines – contractor to supervising consultant to PMT, with quarterly safeguard reports to the Bank and statutory reporting to NEMA; and (vi) annual environmental audits and the Bank's implementation support missions as independent verification layers.

4.7 World Bank Guidelines General Environment Health and Safety Guidelines

The World Bank Group (WBG) general EHS guidelines contain performance levels and measures for development of projects and are considered to be achievable in facilities at reasonable costs by existing technology.

a) Environmental (EHS Guidelines - Waste Management)

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

- i) Understanding potential impacts and risks associated with management of any generated hazardous waste during its complete life cycle;
- ii) Ensuring that people handling, treating and disposing of hazardous waste are reputable and legitimate

enterprises, licensed by the relevant regulatory agencies and following good international industry practice; and
iii) Ensuring compliance with applicable regulations.

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

- i. Regular visual inspection of all waste storage, collection and storage areas for evidence of accidental releases and to verify that wastes are properly labelled and stored;
- ii. Regular audits of waste segregation and collection practices;
- iii. Tracking of waste generation trends by type and amount of waste generated, preferably by facility departments; and
- iv. Keeping manifests or other records that document the amount of waste generated and its destination.

b) EHS guidelines- Air emissions and Ambient air quality),

These guidelines are meant for all types of projects with –significant emissions, sources of air emissions, and potential for significant impacts to ambient air quality to prevent or minimize impacts by ensuring that emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards. They require the application of national legislated standards, or in their absence, the current WHO Air Quality Guidelines, or other internationally recognized sources. Kenya, currently has Environmental Management and Coordination (Air Quality) Regulations, 2024 applicable to this project. In this project, there will be fugitive air emissions, which are expected especially during construction and operation phases of the project. These guidelines are useful as they give control and monitoring measures.

c) WBG EHS Guidelines: Noise

This section addresses impacts of noise beyond the property boundary of the facilities. These guidelines are applicable during construction phase whereby construction equipment and activities are expected to emit noise. Kenyan regulation, EMCA (Noise and Excessive Vibration) Pollution Control Regulations, 2009 give permissible levels during construction works. The proponent therefore has adequate guidance to ensure noise levels are maintained as low as reasonably practicable.

d) WBG EHS Guidelines: Occupational Health and safety

These guidelines guide employers and supervisors in fulfilling their obligation to implement all reasonable precautions to protect the health and safety of workers. The guidelines provide guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. Although the focus is placed on the operational phase of projects, much of the guidance also applies to construction and decommissioning activities. The guidelines also describe how facility operation workplace design should be undertaken to prevent occupational health and safety risks and hazards.

e) EHS Guidelines -Construction and Decommissioning.

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

4.8 World Bank Group EHS Guidelines - Healthcare Facilities

The EHS Guidelines for Health Care Facilities include information relevant to the management of EHS issues associated with health care facilities (HCF). It provides guidelines for basic infrastructure elements / activities of healthcare facilities to improve on health of patients, prevent transmission of infections among patients and staff and control impacts of environment health and safety including maintenance of sanitary conditions and use of appropriate disinfection techniques, portable water, clean air and nosocomial infection control

4.9 Guidelines on Prevention of GBV/SEA

The WB Guidance Note on GBV/SEA in civil works describes GBV/SEA as an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed gender differences.⁶ Consequently, it can occur in a variety of ways, including through the infliction of physical, mental, and sexual harm or suffering threats of such acts, as well as coercion and other deprivations of liberty, such as early or forced marriage, economic abuse and denial of resources, services and opportunities, trafficking and abduction for exploitation, or Intimate Partner Violence (IPV) perpetrated by a former or current partner. Most importantly, the WB applies

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

1. SEA - exploitation of a vulnerable position, use of differential power for sexual purpose; actual or threatened sexual physical intrusion;
2. Workplace sexual harassment - unwanted sexual advances; requests for sexual favors, sexual physical contact;
3. Human trafficking - sexual slavery, coerced transactional sex, illegal transnational people movement; and
4. Non-SEA - physical assault, psychological or physical abuse, denial of resources, opportunities or services

Guidelines for Limiting Exposure to Electromagnetic Fields (100 KHz To 300 GHz)

The guidelines are for the protection of humans exposed to radiofrequency electromagnetic fields (EMFs) in the range 100 kHz to 300 GHz (hereafter –radiofrequency). They aim to provide a high level of protection for all people against substantiated adverse health effects from exposures to both short and long-term, continuous and discontinuous radiofrequency EMFs. Radiofrequency electromagnetic fields (EMFs) are used to enable a number of modern devices. However, EMFs at sufficiently high-power levels can adversely affect health. In addition to nerve stimulation, radiofrequency EMFs can affect the body via two primary biological effects: changes in the permeability of membranes and temperature rise.

Exposure to EMFs can induce electric fields within the body, which for frequencies up to 10 MHz can stimulate nerves. The effect of this stimulation varies as a function of frequency, and it is typically reported as a –tingling sensation for frequencies around 100 kHz. As frequency increases, heating effects predominate and the likelihood of nerve stimulation decreases; at 10 MHz the effect of the electric field is typically described as –warmth. When (low frequency) EMFs are pulsed, the power is distributed across a range of frequencies, which can include radiofrequency EMFs. If the pulse is sufficiently intense and brief, exposure to the resultant EMFs may cause cell membranes to become permeable, which in turn can lead to other cellular changes. Radiofrequency EMFs can also generate heat in the body and it is important that this heat is kept to a safe level. The Tables below provide the basic restrictions for occupational and public exposure to EMFs for different durations. MoH will require to periodically monitor the exposure levels for the MWTM (whose frequency is 2.450MHz) against these restrictions.

Table 6: Basic restrictions for electromagnetic field exposure from 100kHz to 300GHz, for averaging intervals ≥ 6 min

Exposure scenario	Frequency range	Whole-body average SAR (W kg^{-1})	Local Head/ Torso SAR (W kg^{-1})	Local Limb SAR (W kg^{-1})	Local S_{ab} (Wm^{-2})
Occupational	100 kHz to 6 GHz	0.4	10	20	NA

Exposure scenario	Frequency range	Whole-body average SAR (W kg ⁻¹)	Local Head/ Torso SAR (W kg ⁻¹)	Local Limb SAR (W kg ⁻¹)	Local S _{ab} (Wm ⁻²)
General public	100 kHz to 6 GHz	0.08	2	4	NA

Table 7: Basic restrictions for electromagnetic field exposure from 100kHz to 300GHz, for integrating intervals >0 to <6 min

Exposure scenario	Frequency range	Local Head /Torso SA (kJ kg ⁻¹)	Local Limb SA (kJ kg ⁻¹)	Local U _{ab} (kJ m ⁻²)
Occupational	100 kHz to 400 MHz	NA	NA	NA
General public	100 kHz to 400 MHz	NA	NA	NA

Table 8: Basic restrictions for electromagnetic field exposure from 100 kHz to 10 MHz, for peak spatial values

Exposure scenario	Frequency range	Induced electric field; E _{ind} (V m ⁻¹)
Occupational	100 kHz to 10 MHz	$2.70 \times 10^{-4}f$
General public	100 kHz to 10 MHz	$1.35 \times 10^{-4}f$

5. KEY STAKEHOLDER CONSULTATION AND PUBLIC PARTICIPATION

5.1 Introduction

Stakeholder consultations and public participation are geared towards informed decision making by all involved or likely to be affected in a project thereby promoting sustainability. The African Development Bank (AfDB), the Constitution of Kenya (2010), Legal Notice No. 101-the Environmental (Environmental and Social Impact Assessment and Audit) Regulations, 2003 (Revised in 2016), the Legal Notice Number 31 and 32 of 2019 and the EMCA (2015) require that the views of persons who may be affected by the project be sought during the process of conducting an ESIA.

The MoH of Kenya has developed a SEP whose overall objective is to define a program for stakeholder engagement, including public information disclosure and consultation, throughout the project cycle. The SEP outlines the ways in which the project team will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about the project and any activities related to the project. The ministry through SEP recognizes that the involvement of the local population is essential to the success of the proposed project in order to ensure smooth collaboration between project staff, stakeholders and local communities, and to minimize and mitigate environmental and social risks related to the proposed project activities. In the context of infectious diseases, broad, culturally appropriate and adapted awareness raising activities are particularly important to properly sensitize the communities to the risks related to infectious diseases. The full Stakeholder Engagement Plan, including stakeholder identification and analysis, engagement methods, communication plan and monitoring indicators, is provided in Appendix 8.

A public participation meeting was held on 15th of April, 2026 after notification for the meeting was sent seven days before the meeting via the provincial administration and the local media channels-*su/we*

The following were the key findings from the public participation meeting:

1. Majority of those present supported the proposed project
2. The locals were aware of the benefits as well as negative social and environmental impacts of the project
3. Main concerns were based around inclusivity and equitability in ensuring that locals benefit from employment and any community empowerment initiatives.
4. Gender inclusivity was emphasized by the residents during the meeting
5. There was general apprehension that the project might further delayed as residents expressed fear that various meetings regarding the proposal had been held, yet nothing on ground

Minutes and attendance list of the public participation meeting are attached as Appendix 6 of this report.

6. ANALYSIS OF PROJECT ALTERNATIVES

6.1 Introduction

This section analyzes the possible project alternatives for the proposed construction of the Bungoma Level 6 Hospital in Bungoma County. The analysis considers key aspects including project site, design and scale, construction technology, and healthcare waste management options. The selected alternatives are expected to be economically feasible, socially acceptable, and environmentally sustainable with minimal adverse Environmental, Social, Health and Safety (ESHS) impacts and minimal implementation delays.

6.2 The Alternatives

6.2.1 Relocation Option

Relocating the proposed Bungoma Level 6 Hospital to an alternative site is not considered viable. The current site has been strategically selected based on accessibility, land availability, proximity to the target population, and integration with existing infrastructure. Relocation would necessitate acquisition of new land, compensation processes, redesign, and additional approvals, leading to increased costs and significant project delays.

Additionally, the selected site allows for proper planning of hospital infrastructure, including isolation areas, waste management zones, and future expansion. The site can also be adequately secured and zoned to separate medical, administrative, and support functions, making it the most appropriate location for the project.

6.2.2 Zero or No Project Alternative

The No Project alternative implies maintaining the current healthcare situation without constructing the Bungoma Level 6 Hospital. This option is not desirable as it would perpetuate existing challenges such as inadequate healthcare infrastructure, congestion in existing facilities, limited access to specialized services, and increased referrals to distant hospitals.

From a public health, socio-economic, and environmental perspective, the No Project option is the least preferred, as it would hinder progress toward Universal Health Coverage and compromise the quality of healthcare services in the region.

6.2.3 Project Size

The proposed hospital is designed as a Level 6 referral facility with adequate capacity to serve Bungoma County and neighbouring regions. During stakeholder consultations, there were proposals to increase the scale of the facility to accommodate future population growth and rising demand for specialized services.

The selected design balances current healthcare needs with future expansion possibilities, ensuring optimal utilization of resources while maintaining efficiency in service delivery. The hospital will include specialized units such as intensive care, maternity, surgical theatres, laboratories, and diagnostic services.

Healthcare Waste Management Technology

Selection of an appropriate healthcare waste treatment technology is a key design alternative for the proposed hospital. Two principal technology options were compared: incineration and non-burn treatment (autoclave/microwave) systems. Incineration offers the advantage of complete destruction of pathogens and can handle the full range of waste categories, including anatomical and certain chemical wastes; however, it is associated with air emissions, the risk of dioxin and furan formation if not properly operated and maintained, relatively high fuel and operating costs, and a greater likelihood of community opposition due to visible stack emissions. Non-burn treatment technologies such as autoclaving and microwaving, by contrast, produce no combustion emissions, have comparatively lower operating costs, and present a safer working environment for waste-handling operators; their principal limitations are that they cannot treat all waste categories (notably some

anatomical and chemical/cytotoxic wastes), they require pre-treatment shredding of waste, and the treated residues still require landfill disposal at a licensed facility. Weighing these considerations, non-burn (autoclave/microwave) technology is the preferred healthcare waste treatment option for the Bungoma Level 6 Hospital, consistent with Good International Industry Practice (GIIP) and AfDB environmental and social safeguard preferences for non-incineration medical waste treatment, provided that a residual incineration capacity or a licensed third-party incineration/disposal arrangement remains available for the limited waste streams that cannot be autoclaved or microwaved.

6.3 Conclusion

The proposed construction of the Bungoma Level 6 Hospital represents the most suitable alternative for addressing healthcare challenges in Bungoma County. Key alternatives considered included relocation, the no-project option, project scale, and healthcare waste management technologies.

The selected site and design provide optimal accessibility, cost-effectiveness, and room for expansion while minimizing environmental and social impacts. Non-burn healthcare waste treatment technologies are preferred due to their environmental sustainability and compliance with global best practices.

Overall, the project aligns with national development goals and environmental standards, and its implementation will significantly improve healthcare delivery while ensuring protection of public health and the environment.

Therefore, opting for microwaving against the other waste treatment options is well within the best environmental practices.

CLIMATE CHANGE AND SUSTAINABILITY

CLIMATE VULNERABILITY ASSESSMENT FOR THE PROPOSED HOSPITAL

Projected climate conditions for the period 2025-2050 indicate notable changes in temperature, rainfall patterns, and the frequency of extreme weather events within the project area in Bungoma County. According to projections from the Kenya Meteorological Department and regional assessments by the Intergovernmental Panel on Climate Change, western Kenya, including the Mount Elgon region within which Bungoma County lies, is expected to experience gradual warming, altered rainfall distribution, and increased intensity of storm events. Given that the proposed Bungoma Level 6 Teaching and Referral Hospital is intended to serve a large and growing population across Bungoma County and the wider Western Kenya region, it is critical that the project integrates climate resilience measures to ensure sustainable and uninterrupted healthcare service delivery.

Average temperatures within the project area are projected to increase moderately by mid-century, consistent with regional warming trends. Although Bungoma benefits from a tropical savanna climate moderated by its proximity to the Lake Victoria basin and the elevated slopes of Mount Elgon, rising temperatures may result in more frequent warm periods, affecting indoor thermal comfort within hospital buildings. Sensitive units such as maternity wards, neonatal intensive care units, operating theatres, and inpatient wards may be particularly affected. Increased temperatures may also affect the efficiency and lifespan of medical equipment and electrical systems, while increasing demand for energy-intensive cooling and ventilation systems.

Rainfall patterns in Bungoma County, already characterized by a bimodal, comparatively high-rainfall and humid regime driven by monsoon winds and the influence of Mount Elgon, are projected to become more erratic. Changes may include shifts in the onset and duration of the long and short rains, coupled with more intense rainfall events over shorter periods. These conditions may increase the risk of surface runoff, localized flooding, and soil erosion, particularly given the volcanic foothill terrain and hillocks (such as Chetambe, Sang'alo, and Kabuchai) that characterize the wider Kabuchai and Mukuyuni area. Within the hospital site, such events could lead to waterlogging, erosion around foundations, and disruption of access roads, particularly critical given the hospital's role in emergency and trauma care linked to regional transport corridors connecting Bungoma to Uganda and the greater East African region.

The frequency and intensity of extreme weather events such as thunderstorms, strong winds, lightning, and occasional hailstorms are also expected to increase in the Mount Elgon region. These events pose risks to hospital infrastructure, including roofing systems, windows, solar installations, water storage facilities, and communication systems. Any damage to these components could disrupt critical healthcare services, especially for a Level 6 referral facility expected to reduce reliance on distant tertiary facilities.

Secondary climate-related impacts are also anticipated. Given Bungoma's comparatively higher rainfall and humidity relative to drier highland areas, sustained periods of high humidity may promote moisture accumulation, mould growth, and corrosion of building materials and equipment if not properly managed, while dry-spell dust generation, though less pronounced than in drier counties, may still affect indoor air quality in sterile and sensitive hospital environments during the shorter dry periods (June to September and January to February).

These factors could accelerate infrastructure deterioration and increase operational costs over time if not addressed through appropriate design and maintenance measures.

In response to these projected climate risks, the proposed hospital development should incorporate comprehensive climate-resilient design and operational strategies. These include: well-designed and adequately sized stormwater drainage systems suited to Bungoma's higher rainfall regime; use of durable, weather- and moisture-resistant construction materials; reinforced roofing and structural systems to withstand extreme weather; optimized natural ventilation and dehumidification to manage humidity; installation of reliable water storage and backup systems; and implementation of preventive maintenance programmes. Integrating these measures will enhance the resilience of the hospital, ensuring continuous delivery of critical healthcare services in the face of evolving climate conditions.

COMMUNITY AND SOCIAL VULNERABILITIES

During climate-related events, disruptions to hospital infrastructure can trigger a chain of community and social vulnerabilities, particularly affecting access to healthcare services, patient safety, and overall community wellbeing within Bungoma County and the wider Western Kenya region. Extreme weather conditions such as heavy rainfall, localized flooding, and strong winds may damage critical hospital components including wards, maternity and neonatal units, sanitation facilities, and access roads. Such disruptions may result in temporary interruption of essential health services at a time when emergency response and continuity of care are most needed, especially for a Level 6 referral facility.

The surrounding population, including communities in Kabuchai, Mukuyuni, and neighbouring sub-counties, is expected to rely heavily on the proposed Bungoma Level 6 Teaching and Referral Hospital as a central hub for specialized healthcare, emergency services, and referral care. Communities along the regional transport corridors linking Bungoma to Uganda and neighbouring counties such as Busia, Kakamega, and Trans Nzoia depend on timely access to such facilities. Climate-induced disruptions to hospital operations may therefore lead to delayed treatment, increased travel distances to alternative facilities, and additional financial and logistical burdens for households. Interruptions in critical services including emergency trauma care, maternal and child health services, and inpatient care may directly affect health outcomes, particularly during peak demand periods.

These impacts are not evenly distributed across the population. Low-income households, which constitute a significant proportion of the population within Bungoma County, are likely to be disproportionately affected. Limited financial capacity, inadequate access to reliable transport, and dependence on public healthcare systems may hinder their ability to seek alternative care when services are disrupted. Vulnerable groups such as persons with disabilities, the elderly, and patients with chronic illnesses face heightened risks if access roads become impassable due to flooding, erosion, or poor drainage, limiting their ability to reach the hospital during emergencies.

Pregnant women, newborns, and infants remain among the most vulnerable groups during climate-related disruptions. Any interruption in maternity, neonatal, or emergency obstetric services, or delays in reaching the facility due to extreme weather conditions, may increase the risk of complications and adverse health outcomes. Given the hospital's intended role in reducing maternal and neonatal mortality in line with national health targets, ensuring uninterrupted access to these services is critical.

Additionally, climate-related damage to hospital infrastructure may compromise its function as a key emergency response centre during disasters. As a Level 6 referral hospital, the facility is expected to serve as a focal point for emergency medical response across Bungoma County and neighbouring counties. Structural damage, ineffective stormwater management, or compromised sanitation systems could limit its operational capacity during critical periods,

thereby weakening community resilience.

To address these vulnerabilities, the project should incorporate inclusive and climate-resilient planning measures such as all-weather access roads, barrier-free design for vulnerable groups, decentralized service delivery where feasible, emergency preparedness systems, and strengthened referral networks. These measures will help ensure that the hospital continues to serve its critical role in safeguarding public health, even under changing climate conditions.

ENVIRONMENTAL VULNERABILITY

The proposed construction of the Bungoma Level 6 Teaching and Referral Hospital is situated within a landscape shaped by the volcanic foothills of Mount Elgon, an environment increasingly exposed to climate variability, including rising temperatures, shifting rainfall patterns, and more frequent extreme weather events as projected by the Intergovernmental Panel on Climate Change. Construction activities such as excavation, foundation works, and erection of hospital structures will temporarily disturb soils and may alter natural surface drainage patterns within the project site. These disturbances may heighten susceptibility to soil erosion, dust generation, and localized flooding if not properly managed.

During periods of intense rainfall, which occur more frequently and with greater volume in Bungoma than in many other parts of the country given its proximity to Mount Elgon and the Lake Victoria basin, stormwater runoff may exceed the capacity of on-site drainage systems, especially during peak construction phases. This could result in temporary water accumulation in open areas, internal access roads, and service zones within the hospital compound. Uncontrolled runoff may accelerate soil erosion, cause sediment deposition, and degrade both paved and unpaved surfaces. In addition, water saturation around building foundations and underground utilities may reduce soil bearing capacity, increasing the risk of settlement, structural stress, and long-term damage to hospital infrastructure.

Extended dry periods, though shorter and less severe in Bungoma than in drier counties, may also impose environmental stress on the project site, particularly during the June-to-September and January-to-February dry spells. Dry conditions may increase dust generation during both construction and operational phases, potentially affecting air quality within sensitive hospital environments. Elevated temperatures may accelerate the wear and tear of external finishes, paved walkways, and landscaping features, thereby increasing maintenance demands. Loss of vegetation cover during site clearing may further intensify surface heating and reduce the natural cooling benefits of green spaces within the hospital compound.

Strong winds associated with extreme weather events present additional environmental risks. Wind action may exacerbate soil erosion on exposed surfaces and increase the dispersion of dust and loose construction materials. Poorly secured materials, temporary installations, and lightweight structures may be displaced, posing both environmental and safety concerns within the site.

Climate variability may also affect water availability and overall site usability during both construction and operation. Heavy rainfall events, more characteristic of Bungoma's climate than of drier highland areas, may disrupt site mobility, affect construction timelines, and compromise the effectiveness of drainage infrastructure. If not well controlled, runoff during such events may carry sediments, construction debris, and waste materials toward nearby watercourses such as the Nabuyole and Teremi rivers, leading to localized environmental pollution within and around the project site.

To minimize these vulnerabilities, the project should integrate robust environmental management measures, including erosion control strategies, well-designed stormwater drainage systems sized for Bungoma's higher rainfall regime, phased site clearing, dust suppression practices, proper material storage, and sustainable water use planning. These measures will help ensure that both the construction and operational phases of the hospital are environmentally sustainable and resilient to climate variability.

CLIMATE CHANGE ADAPTATION MEASURES

Climate change is projected to increase the frequency and intensity of extreme weather events, including heavy rainfall, localized flooding, and temperature variability within Bungoma County and the wider Western Kenya region. In line with projections by the Intergovernmental Panel on Climate Change, the proposed Bungoma Level 6 Teaching and Referral Hospital should be designed and implemented with strong climate resilience considerations. As a critical regional referral and trauma facility, the hospital must maintain continuous operations under varying climatic conditions while safeguarding patients, staff, and infrastructure.

The following climate change adaptation measures are recommended:

- Design and installation of effective stormwater drainage systems, sized for Bungoma's comparatively high rainfall regime, capable of safely channeling runoff away from hospital buildings, internal roads, and service areas to prevent localized flooding and waterlogging during intense rainfall events.
- Elevation of building floor levels where necessary, and protection of critical areas such as operating theatres, intensive care units, diagnostic rooms, and utility installations to minimize the risk of water ingress and damage.
- Implementation of soil stabilization measures, including proper grading, compaction, and installation of erosion control structures, to reduce soil erosion and enhance structural stability of foundations, taking into account the volcanic foothill terrain near Mount Elgon.
- Design of foundations and structural components in accordance with geotechnical survey recommendations to withstand soil movement, moisture fluctuations, and differential settlement associated with changing rainfall patterns.
- Use of durable and weather-resistant construction materials, including corrosion-resistant fittings and protected electrical and mechanical systems, to improve the lifespan and reliability of infrastructure under Bungoma's higher humidity and rainfall conditions.
- Incorporation of passive design features such as natural ventilation, adequate shading, and dehumidification of sensitive areas to regulate indoor temperature and humidity and maintain comfort in patient care areas.
- Provision of adequate and reliable water storage systems, including strategically sized water tanks, to ensure uninterrupted water supply during any disruption to municipal or piped water supply.
- Integration of energy-efficient systems and renewable energy sources, such as solar power, to enhance energy security and ensure continuity of critical services during power outages or extreme weather events.
- Proper scheduling and management of construction activities, where feasible, to avoid peak rainfall periods and reduce risks related to erosion, flooding, and construction delays.
- Establishment of routine inspection and preventive maintenance programmes for drainage systems, roofing, structural components, and utility installations to sustain long-term resilience and operational efficiency.

CLIMATE CHANGE MITIGATION MEASURES

Climate change mitigation focuses on reducing greenhouse gas (GHG) emissions and minimizing the overall environmental footprint of the proposed Bungoma Level 6 Teaching and Referral Hospital. In alignment with global guidance from the Intergovernmental Panel on Climate Change and national sustainability goals, the project will integrate energy-efficient, resource-conscious, and low-emission strategies throughout its design, construction, and operational phases. These measures will support sustainable healthcare delivery while contributing to broader climate change mitigation efforts.

The following mitigation measures are recommended:

- Installation of solar photovoltaic systems to supplement grid electricity supply, thereby reducing dependence on fossil-fuel-based energy and lowering greenhouse gas emissions associated with hospital operations.
- Use of energy-efficient lighting systems (such as LED fixtures), electrical appliances, and medical equipment to minimize overall energy consumption within the facility.
- Maximization of natural lighting and cross-ventilation in building design, where feasible, to reduce reliance on artificial lighting and mechanical cooling systems, thus lowering energy demand.
- Use of durable, low-emission, and locally appropriate construction materials with longer service life to reduce

emissions associated with frequent maintenance, repair, and replacement.

Incorporation of rainwater harvesting systems, in addition to the hospital's planned water storage tanks, to supplement water supply, reduce pressure on conventional water sources, and minimize energy use associated with water pumping and treatment, taking advantage of Bungoma's comparatively higher rainfall.

Promotion of tree planting and landscaping within the hospital compound, using locally appropriate species, to enhance carbon sequestration, improve microclimatic conditions, and reduce heat buildup within the facility.

Sourcing of construction materials from local suppliers where possible to reduce transportation distances, fuel consumption, and associated carbon emissions.

Implementation of efficient waste management practices, including segregation at source, recycling of suitable materials, and safe non-burn treatment and disposal of non-recyclable waste, to minimize environmental pollution and reduce emissions during both construction and operation phases.

7. POTENTIAL IMPACTS IDENTIFICATION AND MITIGATION MEASURES

Impact Assessment Methodology

The identification and evaluation of potential environmental and social impacts in this ESIA follows a structured, semi-quantitative methodology consistent with the Environmental (Impact Assessment and Audit) Regulations and with the African Development Bank Group's Integrated Safeguards System (ISS, 2023). Potential impacts were identified by overlaying the project activities for each phase (planning and design, construction, operation and decommissioning) on the established environmental and social baseline, drawing on site reconnaissance, baseline measurements, stakeholder consultation outputs and professional judgement. Each potential impact is characterised as direct, indirect, induced or cumulative, and is rated against five criteria as set out below:

Criterion	Scale	Description
Magnitude (M)	1-5	Severity of the change relative to baseline conditions (1 = negligible; 5 = severe)
Duration (D)	1-5	Temporal extent of the impact (1 = temporary/short-term; 5 = permanent)
Extent (E)	1-5	Geographic reach (1 = site-specific; 3 = local/ward level; 5 = regional or beyond)
Reversibility (R)	1-3	Ease of reversal once the activity ceases (1 = readily reversible; 3 = irreversible)
Likelihood (L)	1-5	Probability of occurrence (1 = unlikely; 5 = certain)

A composite significance score is derived as $\text{Score} = (M + D + E + R) \times L$, and each impact is classified as Low (score ≤ 15), Medium (16-35) or High (≥ 36). Significance is assessed both before mitigation and with the mitigation measures committed in this report and the ESMMP applied (residual significance). Where quantification is feasible, measured or estimated values (baseline noise levels, waste generation rates, workforce numbers, land take and water demand) inform the ratings; where quantification is not feasible, ratings rely on documented professional judgement and comparable-facility experience.

This framework underpins the phase-by-phase identification and mitigation of impacts presented in this chapter, and the consolidated residual impact ratings presented in the Residual Impact and Risk Assessment section of this report.

For the purposes of this assessment: direct impacts arise from project activities themselves; indirect impacts occur later in time, or at a distance from the activity, through intermediate pathways; induced impacts result from third-party activities stimulated by the project (for example, settlement growth and commercial development around the hospital); and cumulative impacts are the combined, incremental effects of the project together with other past, present and reasonably foreseeable developments in the area of influence. Residual impacts are those remaining after implementation of the committed mitigation measures; these are carried into the ESMMP for monitoring and management.

This chapter identifies and predicts the potential impacts on different environmental and social aspects arising from planning and design phase / pre-construction activities, construction activities and activities during the operation and decommission phases of the proposed project.

7.1 Potential Impacts During Planning and Design Phase

7.1.1 Potential Positive Impacts During Planning and Design Phase

i. Employment Opportunities

With the planning and design phase of the proposed project, there will be employment opportunities especially for professionals such as engineers, surveyors, environmentalists, health and safety, public health experts and sociologists among others. Those employed will improve their living standards from the fees they will be paid for their services.

ii. Creation of Awareness

During the planning and design phase of the proposed project, a lot of awareness has been done through consultations on different aspects of the project. Awareness creation improves project acceptance in its planning, implementation and operations phases as well as promote project sustainability. Infection Prevention Control measures in line with COVID-19 MoH Standards Operating Procedures (SOPs) were articulated too during Stakeholder Engagement Forums.

7.1.2 Potential Negative Impacts During Planning and Design Phase

The proponent has mobilised a team of project design experts from the Ministry of Public Works and Environmental and Social consultants to undertake the surveys and other studies required for the project. There are potential risks of poor siting of the facilities or non-adherence to the MoH guidelines and specifications on the design of the infrastructure. However, the planning and design studies do not allow for any large-scale destruction and disturbance of vegetation and soils. Mobilization of the skilled experts and the process of consultations with key stakeholders however lead to heightened expectations and speculations and especially on employment opportunities for the surrounding community members.

Proposed Mitigation Measures:

It is envisaged that there will be minimal to no negative impacts during the planning and design stage. However, the design team, Environment and Social experts shall take the necessary measures to mitigate risks through;

- Liaising with the relevant Technical Government department in development of the designs,
- Proper siting of the waste treatment facility and ensuring harmony with the hospital layout and planning,
- Ensure all the legally required permits such as getting the designs approved, acquiring the ESIA License are obtained prior to undertaking the construction activities,
- The contractor bidding documents should contain clauses on Environmental Social Health and Safety (ESHS) requirements to guide the contractor on the key requirements,
- Project Management Team (PMT) specifically the Environmental and Social Expert should ensure the design requirements are adhered too in the planning stage.

7.2 Potential Impacts during Construction Phase

7.2.1 Potential Positive Impacts during Construction Phase

- Employment opportunities during construction. The project will generate short-term employment opportunities during the construction phase for skilled and unskilled workers, including masons, electricians, plumbers, technicians, and casual labourers. Indirect employment opportunities will also arise for suppliers of construction materials, transport services, food vendors, and other service providers. These activities will contribute to local income generation, skills development, and stimulation of the local economy.

- Provision of ready market for construction materials such as sand, ballast and cement that will be sourced from local market, this will lead to injection of money into the local economy thereby supporting economic growth within Bungoma County.

- Gender Equity and Social Inclusion

The project will significantly benefit women and girls by improving access to quality reproductive, maternal, and postnatal healthcare services. Adequate antenatal and postnatal facilities, privacy in wards, and specialized neonatal care reduce health risks associated with pregnancy and childbirth. Improved access to maternal healthcare services promotes gender equity by addressing the specific health needs of women, while inclusive facility design ensures access for persons with disabilities, the elderly, and other vulnerable groups.

- Social Cohesion and Community Wellbeing

The proposed construction of level 6 hospital will enhance community confidence in public healthcare services. A functional and well-equipped facility serves as a key community asset, strengthening social cohesion and collective wellbeing. Improved healthcare availability reduces household healthcare burdens, enhances community resilience, and supports social stability by ensuring timely access to essential medical services.

- Improved Sanitation and Environmental Protection

Sanitation will improve through proper management of wastewater, medical waste, and effluent generated during and after construction. The project will incorporate appropriate waste treatment systems in line with guidelines from the Ministry of Health Kenya to ensure safe handling and disposal. This will reduce risks of environmental contamination and disease transmission, protect soil and water resources, and promote a cleaner and healthier environment. Proper drainage and effluent management systems will further prevent pollution of surface and groundwater resources.

- Improved Access to Healthcare Services

The construction of the Bungoma Level 6 Hospital will result in significant positive social impacts by enhancing the region's healthcare infrastructure. The improved facility will increase capacity for both specialized and general healthcare services, reduce congestion in existing hospitals, and improve patient flow. Enhanced service delivery will reduce referrals to distant national hospitals and improve accessibility to quality healthcare for communities within Bungoma and neighbouring regions.

7.2.2 Potential Negative Impacts during Project Construction Phase

The following negative impacts are associated with the proposed project.

i. Interference with the Physical Setting

The proposed project will involve site clearance and excavation works that will interfere with the physical setting.

Proposed Mitigation Measures:

- The contractor should ensure that there is minimal disturbance to the topography of the area;
- The project designs should be such that they do not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area. Any topographical change needed should be done to avoid soil erosion or storm water drainage issues;
- The hospital and associated structures should be aesthetically acceptable to blend in with the surrounding environment and other hospital facilities;
- Restoration shall be undertaken to ensure that the original setting is as much as possible retained;
- The proponent should observe measures stipulated in the ESMP for sustainable project implementation.

ii. Improper Management of Construction Related Solid Wastes

Solid wastes to be generated during construction include papers used for packing, plastics, scrap wood, glass cullet, metal and debris. Dumping around the site will interfere with the aesthetic status and has a direct effect on the surrounding community. Disposal of the same solid wastes off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be vector or pest breeding, pollution of physical components of the environment including water resources, soil/land, invasion of scavengers and informal recycling by communities.

Proposed Mitigation Measures

- The contractor shall prepare, as part of the C-ESMP, a waste management plan to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any works, which should promote waste minimization and recycling.
- The contractor shall be responsible for handling and disposal of all construction and related waste.
- Encourage efficient use of materials to as much as possible avoid and minimize waste production.
- Ensure wastes are recycled / reused before opting to dispose of.
- Designate temporal waste / garbage holding areas at site.
- Use of waste receptacles that encourage segregation to hold waste on site before its collection.
- Minimize production of waste by using of durable, long-lasting materials that shall not need to be replaced often.
- Engage NEMA registered waste contractor to dispose of all wastes and have waste destruction certificate and waste transfer notes.
- Waste disposal by open burning shall not be permitted and signage should be erected directing banning such practice, and.
- Fine earth materials (sand and murram) should be covered using tarpaulins during haulage to prevent spillage, dust and particulate matter emission.

iii. Management and Disposal of Spoil Material

Construction works will involve earthworks and excavation which could lead to generation of spoil. If not well managed and finally disposed, it could become an eyesore creating hiding and breeding sites for rodents and other undesired creatures. This can be mitigated by observing the following measures:

- Contractor shall prepare waste management plan as part of the C-ESMP to be implemented at the site (storage,

provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any works, which should promote waste minimization and recycling

- Maximizing the re-use of excavated materials in the works as far as feasible to ensure that no permanent spoil dumps are created,
- Spoil dumping should be away from any water resources to avoid possible water pollution from siltation/sedimentation,
- Extra loads of murram should be used to make good of any worn-out sections of the walkways/ driveways within the hospital; this should be done in conjunction with the hospital management;
- Besides, the local community should be given the first priority while disposing the extra loads of murram; this should be done at a consideration (reasonable fee) or better still donated in case of public use; and
- Properly disposing off the spoil in an area identified by the contractor and approved by the confirmed land owners, hospital management as well as by NEMA; care should be taken to avoid degrading land that could otherwise be used for productive purposes.

iv. Noise and Vibration Generation

Construction activities of the proposed project will most likely result in noise emissions and vibrations as a result of the machines that will be used, e.g., excavation equipment and construction vehicles delivering materials to site. Noise could also be generated by construction workers causing nuisance and/or adverse effects on patients at the HCF.

Baseline noise level measurements were undertaken at four sensitive residential receptor points surrounding the proposed Bungoma site on 9th May 2026, using a calibrated Class 1 sound level meter (Model LxT) in accordance with ISO 1996 methodology. The average daytime LAeq readings recorded were: Point 1 - 46.44 dB(A); Point 2 - 53.04 dB(A); Point 3 - 53.49 dB(A); and Point 4 - 49.6 dB(A). All four points were within the 55 dB(A) daytime limit prescribed under the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 for residential/institutional receptors. Full methodology, instrumentation, and raw logging data are provided in the standalone Baseline Noise Assessment Report appended to this ESIA package.

Proposed Mitigation measures

The contractor shall put in place several measures that will mitigate noise pollution during the construction phase to include the following:

- Contractor to coordinate with HF administration on acceptable days and times for work, and in particular related to any specific works that may cause more significant noise and/or for extended periods within a day.
- Noise suppression measures must be applied to all construction equipment such as installing portable barriers to shield compressors and other small stationary equipment, cover engine of generators where necessary;
- Use of quiet equipment (i.e., equipment designed with noise control elements such as those that utilize electricity as opposed to those which utilize diesel or petrol) and ensure all the equipment used on site are well maintained and in good working condition,
- Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible;
- Provision of appropriate PPE (hearing protection - ear muffs/plugs) to the workers and any other person visiting the construction and renovation site especially in work areas with heightened noise levels, Issuance of PPE shall be tracked, its use enforced, and worn-out items replaced promptly.
- Limit construction activities to during day time, between 8am and 5pm;
- Consider manual labour-based construction methodologies; and
- Construction workers should be made aware of the sensitive nature of the work place and advised to limit verbal and other forms of noise.

v. Air pollution through Dust and Emissions

Dust could most likely be emitted during excavation activities and from construction material stock piles and related earthworks which could potentially lead to air-borne particulate matter pollution. Gaseous emissions

are also expected from the construction vehicles. This is likely to affect site workers and the neighbouring community members, in extreme situations leading to respiratory problems.

Proposed Mitigation measures

To mitigate on these, the following measures are proposed:

- Minimize the number of motorized vehicles on use and limit vehicle speeds to a maximum of 10Km/Hr around and within the project site;
- Make use of predetermined routes when bringing in construction material or in transportation of solid waste generated;
- Periodically service all the equipment and machinery and ensure in good working condition to minimize emissions;
- The contractor should wet all active construction areas as and when necessary to reduce dust; and
- Cover the stock piled construction materials and spoil generated from the excavations,
- Provide appropriate PPE (dust mask) to workers and enforce on use, and track issuance/replacement of worn-out PPE.
- When transporting construction material, ensure vehicles are covered with tarpaulins in order to minimize on dust emissions; and
- Burning of solid waste material should not be permitted at project site.

vi. Vegetation Loss

The project site has very little vegetation cover, most of them planted tree species. It is expected that the proposed structures will fit in the cleared section; hence no vegetation clearance is expected. To contain the potential negative impacts related to vegetation loss, the following mitigation measures are recommended:

- The contractor will ensure proper demarcation of the project area to be affected by the construction works;
- Strict control of construction vehicles to ensure that they operate only within the area to be disturbed by access routes and other works;
- None of the trees close to the site should be felled: and
- Make efforts of planting more trees once the construction process is over around the project site. Preference should be given to indigenous tree species during any replanting/revegetation.

vii. Accidental Spills and Leakages

The main chemicals to be held on the site during the construction phase are likely to be; fuel lubricants, oil and grease (from construction vehicles/ equipment), paints and pest control substances to be applied on the wooden structures and foundations. Spillage of such compounds are likely to have an immediate impact upon the local water resources (storm water) and consequently on the terrestrial and aquatic flora and fauna. This can be checked by observing the following measures:

- Temporal storage on site of all hazardous /toxic substance will be in a bunded storage area to ensure containment of spillages/leakages;
- Ensure proper storage of chemicals / materials, and if possible, in secondary containers just in case of accidental puncturing, and away from storm water runways or exposure to weather elements such rain;;
- Ensure proper handling, storage and disposal of waste oil, lubricants, oil filters and fuel from vehicles. Hazardous waste would be contained and properly disposed by licensed hazardous waste handler;
- The contractor should provide appropriate PPE (medical mask, gowns, heavy duty gloves, eye protection and boots) to workers on site;
- During the course of the construction works, temporary drainage channels should be constructed to encourage dispersal of meteoric waters;
- Contractor to have spill prevention and response procedure including all necessary equipment and that of workers are trained; and
- Contractor to immediately report to HCF and Project PIU any spills or accidental releases

viii. Extraction and Use of Construction Materials

Construction materials that will be used include; timber, building blocks, ballast, sand and cement are extracted from quarries and other natural resource banks such as rivers and land or obtained from hardware shops. To check on the impacts of material extraction and use, the following is recommended:

- The contractors should source construction materials such as sand and ballast from registered and NEMA licensed quarry and sand mining firms/groups and/or from suppliers of such firms are expected to apply acceptable environmentally friendly processes in their operations,
- The contractor should adhere to the procurement plan and only order for what will be required through accurate budgeting and estimation of actual construction material requirements;
- The proponent should only approve final payment to the contractor after confirmation that all excavated sites have been backfilled and other degraded areas have been restored.

ix. Increased Water Demand

To check on its sustainable use, the following mitigation measures have been proposed:

- The proponent, through the contractor, shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use,
- Install a discharge meter at water outlets to determine and monitor total water usage and enable the contractor to pay for the water he utilizes or wastes. Alternatively, the contractor should source water from licensed water vendors who can supply by use of water bowsers; The contractor should also consider rainwater harvesting as a supplementary, more sustainable source for non-potable construction water use.

x. Archaeological and Other Cultural Properties

From the field visits there are no known archaeologically protected monuments and cultural properties in the proposed project area and therefore, there will be no impacts on them. Should any archaeological or culturally important artefact be discovered during the construction/excavation process, the contractor should implement a chance-find procedure, whereby any archaeological, historical, or culturally significant materials or remains uncovered during construction are immediately reported to the site supervisor, works are suspended in the affected area, and the National Museums of Kenya is notified for assessment prior to resumption of works.

xi. Occupation/Public Health and Safety Impacts

Construction works unavoidably expose workers to OSH risks such as accidents and injuries from accidental falls from heights, slips due to wet surfaces, burns from welding, electrocution and use of faulty hand tools and construction equipment. In relation to public safety, there will be risks related to use of heavy equipment at the construction site as well as construction materials storage areas. There will also be an increased risk of traffic related accidents from vehicles transporting construction materials. Such hazards and risks can be mitigated through observing the following:

- To reduce on the workers' accidents and hazards, the contractor is expected to comply with OSH rules and regulations as stipulated in the OSHA, 2007. Ensure the work place is registered by the Directorate of Occupational Safety and Health Services (DOSHS);
- The contractor shall prepare an OSH plan, as part of their C-ESMP, for the construction works and should include input from the HCF management on potential health and safety risks associated with the construction activities and meet all OHS requirements in Kenya laws and regulations.
- All construction workers should be sensitized on the health and safety requirements while at the project sites and risks associated with construction work;
- Workers should be provided with suitable PPE such as safety helmets, safety shoes, gloves, masks and overalls;
- Provision of clean, accessible and gender-sensitive sanitary facilities, and safe drinking water, to workers;
- Barricade the active work sites to limit entry of unauthorized people such as health staff and patients. Use of screens and nets to avoid flying debris and ensure good housekeeping at the construction site;
- Trenches over 0.5m deep or wherever soil conditions dictate should be secured against accidental fall by workers and the public; Workers required to work at height must receive appropriate training and be provided with safety harnesses, and the building works should incorporate

appropriate fall-arrest systems.

- Install information and safety signage along the work areas; Safety signage should be clear and translated into the local language(s) used in the area.
- Site should have an accessible grievance redress mechanism to allow workers/community to raise safety issues and propose improvements of project sites
- Task based risk assessment should be done on daily basis to assess the risks and hazards thereby prescribing the appropriate prevention measures; and
- A safety officer shall be designated at the construction site and shall maintain a log of incidents (safety register) on site and report on any fatalities related to the project within 24 Hrs.
- Vehicle speeds should not exceed 10km/hr within and around the project site
- Have a traffic control person within the around the project site
- The contractor complies with provisions of WIBA, 2007 for all the workers engaged

xii. Spread of Communicable Diseases and Other Infections like Communicable diseases

During the construction phase there is a risk of spread of communicable diseases such as tuberculosis and pulmonary infections. With the concentration of people at one place during construction, there will be a likelihood of increase in diseases such as typhoid, tuberculosis, diarrhoeal diseases, dysentery, and cholera and, respiratory diseases. Proposed mitigation measures include the following:

- Treat affected local and migrant workers which will control the spread of disease vectors (through contaminated water and between people);
- Provision of adequate and accessible sanitation facilities in good condition with adequate water supply;
- Create awareness to workers on proper sanitation and personal hygiene to promote proper health, and The contractor should establish a site clinic staffed by a qualified nurse and maintain a Memorandum of Understanding (MoU) with a nearby health facility for treatment of workers requiring further care.
- To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate,

a) Increase in HIV/AIDS Prevalence and other STIs

As the project is going to bring in a significant population of new people in the project area it is possible to have new infections. This is due to the fact that the contractors, traders and workers will have money to attract women/men from the project area in a bid to solicit for sex, thereby creating avenues for spread of HIV/AIDS and other STIs. The most vulnerable members of the community are women and children as they are more vulnerable. It is recommended that the project proponent and the contractor should ensure that prevention and management of STIs as a result of social interaction between project workers and local populations is conducted through:

- Hiring workers from the local community to prevent social challenges associated with labour camps;
- Education and sensitization of workers and the local communities on HIV/AIDS and STIs including provision of condoms to the project team and the public;
- The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers and the local communities for the duration of the contract e.g., erect and maintain HIV/AIDS information posters at prominent locations as specified by the Public Works Engineer (PWE); and
- Contractor should sign code of conduct (CoC) to guide on promoting behaviour change among the workers

xiii. Labour Influx

The project is going to attract an average of 200 workers it is important that the contractor and the facility put mechanisms in place to limit labourers from other counties (especially unskilled labour) by

- The employees are hired from within the locality hence limited movement or very short distances from their homes;
- The skilled labour force from far to reside in hotels in close proximity to the project area; Workers should not share accommodation facilities with community members, to minimise social friction and SEA/SH risk.
- The contractor to ensure that the hiring process is done with fairness and gender sensitivity. The hiring should

preferably be done through the local labour office or the area administration;

- Effective contractual obligations for the contractor will be done with workers to adhere to the mitigation of risks against labour influx;
- The contractor to keep proper and updated records of the labourers on site while avoiding child and forced labour;
- Fair treatment, non-discrimination and equal opportunity of all labourers;
- All contractors and contractor workers to sign a CoC that will have provisions on individual responsibilities; and
- The contractor to ensure that the workers have access to a GRM.

xiv. Human Rights and Gender Inequalities / Violation

Women face greater economic vulnerability as their labour participation is often highly informal, without social protection. Low-income women and women migrant workers are especially vulnerable. worsened the already high prevalence of GBV due to greater economic stress in households coupled with increased social isolation. It is recommended that:

- During recruitment of workers there will be no discrimination against one gender either by design or oversight;
- There will be equal compensation for excess working hours; Worker contracts should clearly state leave entitlements, including maternity and paternity leave, consistent with the Employment Act.
- Contractor will ensure there is appropriate sanitary, health and safety facilities measures, such as PPE;
- Contractor to engage an expert to conduct a training on GBV/SEA;
- The contractor to ensure provision of the necessary basic sanitary facilities according to gender -(separate for men and women);
- Contractor to put in place mechanisms for reporting and addressing GBV/SEA and other human rights violations;
- Treat women, children and men with respect regardless of race, colour, language, religion, or other status;
- Report any violations of the CoC to workers 'representative, HR or grievance redress committee and ensure that no employee who reports a violation to the code of conduct in good faith will be punished in any way;
- Comply with the National Gender and Equality Act, 2011, and
- The contractor to ensure that the workers have access and are informed about the GRM.

xv. Conflict and Insecurity

There could be notable conflict between construction workers and community. There may also be conflict between the contractor and the surrounding communities due to: labour recruitment, shared resources (road, etc.) and behaviour of workers.

Proposed Mitigation Measures

- The contractor should explore on the possibilities of having a different access to be able to enhance security and differentiate between patients, visitors and workers accessing the site;
- The contractor, in conjunction with the project management, should hire more security personnel and ensure they are well inducted to address security related issues as they arise;
- Prepare labour management plan (LMP) to guide recruitment of the workers in conjunction with local leaders,
- Limit worker's interaction where possible with community members;
- Proper management of shared resources e.g. Water;
- It is also recommended that the construction workers be provided with easily identifiable uniforms;
- Raise awareness on the GRM mechanisms;
- Adequate consultation with surrounding communities and workers regarding the construction works, and On mobilisation, the contractor should formally introduce incoming workers/crews to the local administration (area chief/assistant chief) and community leaders.
- Contractor security personnel should sign the Code of Conduct that discourages the use of force unless for defensive purposes.

xvi. Sexual Exploitation and Abuse

During the construction phase, the interaction between construction workers and other project stakeholders such as community could lead to sexual exploitation and sexual harassment as senior workers may seek sexual favors

from the juniors. It is recommended that:

- The contractor should adhere to the project's CoC which encompasses clear warning to workers on any kind of SEA and to be signed by every worker on site;
- The contractor provides a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation;
- Share information with the community on the GRM;
- Share information on GBV/SEA referral support services.
- Contractor to ensure that staff are sensitized on GBV/SEA risk management;
- Ensuring that the GBV/SEA one pager is placed on strategic points of the facility, and
- Develop an Action plan of all GBV/SEA incidences to avoid recurrence.

xvii. Grievance arising from construction activities

This is the procedure and mechanism through which relevant stakeholders specifically the project affected persons (PAPs) and community members express their concerns against the project and the implementing staff. Grievances will be expressed through completion of the grievance redress form while others will be expressed verbally or through letters brought to the attention of the project PWE and the representatives through the contractor. The following measures should be undertaken to manage complaints arising from the project construction activities.

- Put in place grievance mechanisms e.g.,
 - Assigning a contractor based GRM Focal Person
 - Putting in place channels to allow people complaint- e.g., Telephone, Email, registers, WhatsApp platform for workers, suggestion box among others, and
 - Ensuring documentation of complaints- Complaints registers
- Raise awareness to all stakeholders including project workers on the existing GRM and sensitizing them on the need to register their dissatisfaction with the contractor or the facility;
- Resolve complaints within the project timeline (acknowledging within 7 days and resolving within 21 days or as soon as possible (within 24 hours for GBV/SEA complaints), and
- Ensure complaints reporting to the PMT on a monthly basis - using the annexed format (Appendix.5)

xviii. Labor Disputes

The contractor and suppliers for the construction of hospital will have workers who will be involved in the construction. The potential labour disputes may arise due to breach of contract regarding conditions of employment, fringe benefits, hours of work, and wages negotiated or of already agreed terms. Labor disputes may also arise due to disagreements amongst the workers and between workers and the contractors and SMP service providers.

Proposed Mitigation measures

The project shall adhere to the requirements proposed in the project LMP including:

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

xix. Child labour risks in the sub-project

Incidence of child workers may occur during construction especially in light of the rising livelihood needs at the households level. It will be useful for the contractor management to protect the project from such incidence by ensuring that recruitment comply with the national laws and that continuous monitoring is done within the phase to ensure non-occurrence of such incidences.

Proposed Mitigation Measures

- The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including on SEA;
- All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behavior;
- Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014;
- Wherever possible, ensure that another adult is present when working in the proximity of children;
- Not to invite unaccompanied children to workers' home, unless they are at immediate risk of injury or in physical danger;
- Project workers must refrain from hiring children for domestic or other labor;
- Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Kenya's Employment Act Cap 226 of 2007 Part VII on protection of children against exploitation, and
- Ensure that recruitment inventory indicates the ages of employment applicants and age verification is done using the national identification cards. Clear signage prohibiting child labour should be displayed at the site entrance and work areas.

7.3 Potential impacts during Operational phase

i. Medical waste

During the operational phase, waste management impacts are expected to be significant because a hospital generates multiple waste streams daily, including general waste and hazardous healthcare waste. If waste is not properly segregated, collected, stored, transported, treated, and disposed of, it can lead to infections, needle-stick injuries, odours, pest infestation, environmental pollution, and non-compliance with Ministry of Health and NEMA requirements. Poor waste handling can also compromise patient safety, increase healthcare-associated infections, and expose workers and the public to biological and chemical hazards.

Hospital waste generated during operation can be classified into several categories. General (non-hazardous) waste includes paper, food waste, packaging materials, office waste, and non-contaminated plastics, and is similar to domestic waste. Infectious waste includes materials contaminated with blood and body fluids such as dressings, swabs, gauze, bandages, gloves, blood bags, and items from isolation areas. Sharps waste includes needles, syringes with needles, scalpels, blades, lancets, and broken contaminated glass, which pose high injury and infection risks. Pathological waste includes tissues, placentas, body parts, and materials from delivery rooms and theatres. Pharmaceutical waste includes expired, damaged, or contaminated medicines and vaccines, while chemical waste includes disinfectants, laboratory reagents, solvents, formalin, and cleaning chemicals. Pressurized containers such as aerosol cans and gas cylinders and e-waste such as broken electronic equipment may also be generated. Wastewater and liquid waste from wards, laboratories, laundry, and kitchen operations constitute an additional pollution risk if not properly handled and discharged.

The greatest waste management risks arise when segregation is not done at source. Mixing infectious waste with general waste increases waste volumes requiring special treatment, increases costs, and exposes cleaners, waste handlers, and the public to infection risks. Poor sharps disposal can lead to needle-stick injuries, which can transmit blood-borne infections. Inadequate storage of waste may cause odours, attract flies and rodents, and result in spillages. Uncontrolled movement of waste through patient areas can increase cross-contamination. If incineration or treatment systems are poorly operated, they can generate air pollution and leave hazardous ash requiring controlled disposal. Illegal dumping or burning of medical waste can contaminate soil and water resources and create serious public health hazards. A detailed, hospital-specific Medical Waste Management Plan (MWMP), covering segregation, collection, treatment and disposal procedures, is provided in Appendix 9.

Impact mitigation⁹

- Waste must be segregated at the point of generation in every ward, theatre, maternity, laboratory, pharmacy, kitchen, and laundry area.
- Segregation must separate general waste from hazardous healthcare waste to prevent cross-contamination.
- Clear signage and posters should be displayed above bins to guide staff and reduce mixing.
- Adoption of the 3Rs Waste Management Hierarchy
- The adoption of the 3Rs waste management hierarchy focuses on minimizing waste generation at the source through the principle of Reduce. This involves efficient use of materials, careful procurement practices, selection of products with minimal packaging, and preference for reusable or durable items where safety standards allow. By reducing waste at the point of generation, the facility can significantly lower the volume of waste requiring handling, treatment, and disposal, thereby minimizing environmental impacts and operational costs.
- The principle of Reuse emphasizes extending the life of materials and products through repeated use before disposal. This can be achieved by utilizing reusable containers, washable linen, and durable equipment, as well as repurposing suitable materials within the facility. Proper cleaning, sterilization, and maintenance procedures will be applied to ensure that reused items remain safe, hygienic, and fit for purpose, particularly within a healthcare setting.
- The Recycle component involves segregation of waste at source to separate recyclable materials such as paper, plastics, glass, and metals from non-recyclable and hazardous waste streams. Clearly labeled waste receptacles will be provided, and staff will be trained on proper waste segregation practices. Recyclable waste will be collected and handed over to licensed recycling service providers for environmentally sound processing. Through the effective application of the 3Rs hierarchy, the facility will promote sustainable waste management, reduce pressure on disposal facilities, and contribute to environmental protection.

ii. Occupational Safety and Health Risks for Healthcare Workers

OHS hazards associated with handling and transporting: needle-sticks injuries; injuries due to other sharps such as broken glass; ergonomic issues especially related to lifting; blood splatter during waste handling; aerosolized pathogens (disease-causing microorganisms released as aerosols or tiny droplets suspended in air) during loading, compaction, or break up of untreated waste; breakage and spills of infectious waste bags; chemical exposure. The hospital environment is a potential source of infectious waste and these could pose unsafe conditions for healthcare staff. Of particular concern are health workers handling infectious waste (including sharps) without adequate protective gear, storage of sharps in containers that are not puncture- Below is a list of OSH risk sources for healthcare staff:

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

Proposed Mitigation measures

- Development and implementation of comprehensive occupational health and safety policies and procedures in line with national legislation and international health care facility guidelines

- Establishment of infection prevention and control programmes, including standard and universal precautions for handling blood and other potentially infectious materials
- Provision and mandatory use of appropriate personal protective equipment such as gloves, masks, gowns, eye protection, and safety footwear
- Regular training of staff on infection control, safe handling of sharps, waste management, chemical safety, fire safety, and emergency response
- Installation of adequate handwashing facilities and promotion of strict hand hygiene practices among staff, patients, and visitors
- Proper segregation, storage, treatment, and disposal of medical and hazardous waste using color-coded systems and licensed waste handlers
- Safe handling and storage of chemicals and pharmaceuticals, including availability of Material Safety Data Sheets and spill response procedures.

iii. Environment Pollution

Solid waste to be generated during operation phase of the hospital. Littering around the site will interfere with the aesthetic status and has a direct effect on the surrounding community. Disposal of the same solid wastes off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be vector or pest breeding, pollution of physical environment including water resource, invasion of scavengers and informal recycling by communities.

Proposed Mitigation Measures

- The management of the hospital shall prepare a waste management plan to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) to promote waste minimization and recycling.
- The hospital management shall be responsible for handling and disposal of all waste originating from the waste treatment microwave area,
- Encourage efficient use of materials to as much as possible to avoid and minimize waste production.
- Ensure wastes are recycled / reused before opting to dispose of.
- Designate temporal waste / garbage holding areas at site.
- Engage NEMA registered waste contractor to dispose of hazardous waste and have waste destruction certificate and waste transfer notes.
- Waste disposal by open burning shall not be permitted and signage shall be erected.
- For the contaminated ash generated from the existing open burning practice, this should be disposed off in an ash pit constructed according to the MoH design specifications to avoid possible soil/water contamination.

iv. Community Health Risk

Improper waste disposal can cause public health risks due to environmental pollution via impaired air quality from open air burning of HCW, storm water contamination or when people rummage through raw waste stockpiles. Unless mitigation recommendations are implemented, the likelihood of the impact occurring is high if no proper HCWM practices are instituted, and if practices of open air burning of all waste types continue.

Proposed Impact Management Measures

- Ensure regular monitoring of solid, liquid waste management practices and waste treatment;
- Ensure proper management of pharmaceutical waste by engaging a consultant to develop measures and guidelines for each facility in accordance with the National Healthcare Waste Management Plan;
- The hospital administrator should undertake regular assessment of waste generation quantities and categories to facilitate waste management planning, and investigate opportunities for waste minimization on a continuous basis,
- Separate residual chemicals from containers and dispose of the containers to reduce generation of secondary contamination especially waste water;

v. Increased Water Use and Liquid Waste Generation

The operation of the proposed facility will place additional pressure on local water resources due to increased demand for potable water for medical procedures, sterilization, patient hygiene, cleaning, laundry services, kitchen operations, and general sanitation. Continuous hospital operations and an increased number of patients, staff, and visitors will significantly raise daily water consumption compared to existing baseline levels. If water abstraction and use are not efficiently managed, increased demand may strain existing water supply systems, reduce water availability for surrounding users, and exacerbate shortages during dry seasons or periods of low supply. Overreliance on limited water sources may also affect the sustainability of local water resources and increase vulnerability to climate variability and supply interruptions.

Proposed Mitigation Measures

- Install water-efficient fixtures and fittings to minimize unnecessary water use.
- Implement regular inspection and maintenance of plumbing systems to detect and repair leaks promptly.
- Provide adequate on-site water storage facilities to buffer against supply interruptions and peak demand.
- Monitor water consumption through metering and record-keeping to promote efficient water management.
- Promote water conservation practices among staff through operational guidelines and training.
- Explore supplementary water sources such as rainwater harvesting for non-potable uses where feasible.
- Schedule high-water-demand activities, such as laundry operations, to minimize peak pressure on supply systems.
- Ensure abstraction and water use comply with relevant regulatory requirements and permits.
- The septic tank should never be allowed to spill on land and it should be exhausted by a NEMA licensed exhaustor, and
- Pre-treatment of wastewater from the health facility before release to the septic tank.

vi. Increased Energy Use

The proposed facility will result in a significant increase in energy demand due to continuous hospital operations and the use of energy-intensive equipment. Major sources of electricity consumption will include medical equipment (diagnostic machines, sterilizers, laboratory equipment), theatre lighting and ventilation, refrigeration for pharmaceuticals and blood storage, laundry services, kitchen appliances, water pumping systems, ICT infrastructure, and general lighting across wards and offices. Most hospital services operate on a 24-hour basis, leading to sustained energy use with peak demand during clinical procedures, laundry cycles, and operational hours.

Increased energy demand may place pressure on the local power supply network, potentially resulting in power instability, higher operational costs, and increased reliance on backup generators. Generator use, particularly during outages, may also contribute to increased fuel consumption, air emissions, and noise if not properly managed.

Proposed Mitigation Measures

- . Install energy-efficient lighting systems such as LED lights throughout the facility.
- Use energy-efficient medical, laboratory, and office equipment with high energy performance ratings.
- Design buildings to maximize natural lighting and ventilation to reduce reliance on artificial lighting and mechanical cooling.
- Implement a preventive maintenance program for electrical systems and equipment to ensure optimal energy performance.
- Install power meters and sub-meters to monitor energy consumption in high-demand areas such as theatres, laboratories, and laundry facilities.
- Utilize automatic controls, timers, and motion sensors to reduce unnecessary energy use in low-occupancy areas.
- Provide backup power systems that comply with safety and environmental standards and ensure generators are well-maintained.
- Explore the use of renewable energy options, such as solar power, to supplement grid electricity and reduce overall energy demand.

vii. Occupational Health and Safety Risk

During the operational phase of a health care facility, occupational health and safety risks are significant due to the continuous interaction between health workers, patients, visitors, and hazardous materials. Health care workers may be exposed to infectious diseases, including blood-borne pathogens such as HIV, Hepatitis B, and Hepatitis C, through contact with blood, body fluids, sharps, contaminated linen, and medical waste. Routine clinical activities such as injections, wound dressing, surgical procedures, laboratory work, and waste handling increase the risk of needlestick injuries, cuts, and splashes, which can lead to occupational infections. Inadequate infection prevention and control practices may also contribute to the spread of hospital-acquired (nosocomial) infections among staff and patients, affecting overall service delivery and staff wellbeing.

Hospital staff may also be exposed to hazardous substances during daily operations. These include disinfectants, sterilizing agents such as glutaraldehyde and ethylene oxide, pharmaceutical chemicals, cytotoxic drugs used in cancer treatment, laboratory reagents, and mercury from broken medical devices. Prolonged or unprotected exposure to these substances can result in respiratory irritation, skin conditions, eye injuries, allergic reactions, or long-term health effects. Workers involved in waste management, laundry, cleaning, and maintenance are particularly vulnerable if hazardous and non-hazardous wastes are not properly segregated and handled.

Physical and ergonomic hazards are also common during hospital operations. These include manual handling injuries from lifting and transferring patients, slips and falls on wet floors, electrical hazards from medical equipment, fire risks associated with oxygen use and flammable chemicals, and stress-related conditions arising from long working hours, emergency situations, and high patient loads. Exposure to radiation from diagnostic imaging and radiotherapy equipment presents additional occupational risks if appropriate shielding, monitoring, and controls are not enforced. Without adequate safety systems, training, and monitoring, these hazards may result in injuries, illnesses, absenteeism, reduced productivity, and legal liabilities for the facility.

Proposed Mitigation Measures:

- Development and implementation of comprehensive occupational health and safety policies and procedures in line with national legislation and international health care facility guidelines
- Establishment of infection prevention and control programmes, including standard and universal precautions for handling blood and other potentially infectious materials
- Provision and mandatory use of appropriate personal protective equipment such as gloves, masks, gowns, eye protection, and safety footwear
- Regular training of staff on infection control, safe handling of sharps, waste management, chemical safety, fire safety, and emergency response
- Installation of adequate handwashing facilities and promotion of strict hand hygiene practices among staff, patients, and visitors
- Proper segregation, storage, treatment, and disposal of medical and hazardous waste using color-coded systems and licensed waste handlers
- Safe handling and storage of chemicals and pharmaceuticals, including availability of Material Safety Data Sheets and spill response procedures
- Implementation of safe patient handling practices and use of mechanical aids to reduce manual lifting injuries
- Regular inspection, servicing, and maintenance of medical equipment, electrical systems, and fire safety installations Clear signage on correct use, handling and access-control procedures should be installed at equipment stations and restricted areas.
- Radiation protection measures, including controlled access to imaging areas, use of shielding, and monitoring of staff exposure
- Establishment of emergency preparedness and response plans, including fire drills, spill response, and first aid services A detailed, hospital-specific Emergency Response Plan (ERP), covering hazard-specific response protocols, incident command and communications, is provided in Appendix 10.
- Routine occupational health surveillance and monitoring to identify and address workplace hazards and health trends

viii. Security concerns and conflict

Lack of proper security arrangements may predispose the HCW facility and accessories to theft, vandalism and pilferage among other security risks. Therefore, there is need to ensure adequate security arrangements.

Mitigation measures

- Ensuring that security personnel undertake adequate surveillance
- Stock taking of the equipment and accessories to ensure there is no loss
- Ensuring proper fencing and lighting arrangement.

ix. Grievances arising from the project activities

Complaints can increase especially where there is lack of proper arrangement to dispose treated Microwave wastes and piles to the neighbourhood. Similarly there could be increased dissatisfaction of workers over terms and working conditions of operating the Microwave waste treatment facility and therefore the need to continuously operationalize the facility GRM mechanisms.

Mitigation measures

- Ensuring that there is an operational GRM that is responsive to stakeholders' concerns
- Continues stakeholder engagement to raise awareness of the project and clarify any outstanding issues
- The hospital should continue to create awareness about the GRM mechanism in place to all workers and patients
- Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants
- Ensuring that there is a workable mechanism of opening complaints reported through suggestion boxes

i. Gender Based Violence/Sexual Exploitation and abuse

- During the project implementation period, the project will continue to monitor SEA risks in the supported healthcare sites. The hospitals will be required to report any SEA cases affecting sub-project workers (i.e., contracted construction personnel and hospital operational staff engaged under this sub-project) to the PMT within 24-hour of the incidence.

Proposed mitigation measures

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

7.4 Potential Impacts during Decommissioning Phase

At the end of the project life as will be recommended by a PWE, the proponent at that point may require vacating the site and institute decommissioning of the project. The decommissioning exercise will have both positive and negative impacts. During the decommissioning stage, demolition or renovations will be done, creating job opportunities for the

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

The earth moving works during top soil replacement will lead to significant deterioration of the acoustic environment within the area and the surrounding areas. This will be as a result of the noise and vibration that will be experienced from machines and workforce being utilized. Dust will also be emitted affecting the surrounding environment. The proponent will put in place mitigation measures for noise and dust pollution during the decommissioning phase. Further complaints and feedback mechanisms should be strengthened to ensure that stakeholders can register any concerns regarding the decommissioning activities.

Cumulative and Induced Impacts

In line with the impact assessment methodology, this section considers the combined, incremental effects of the project together with other existing and reasonably foreseeable developments, as well as impacts induced by the project.

The area of influence of the proposed Bungoma Level 6 Teaching and Referral Hospital includes Sichei village and Mukuyuni ward in Kabuchai Sub-County, the adjoining Sichei KMTC campus and Sichei FYM Comprehensive School, the Chwele-Bungoma road corridor and local market centres. Other past, present and reasonably foreseeable developments considered include the continuing operation and growth of the KMTC campus, trading-centre expansion, county road and utility upgrades, and the induced residential and commercial development expected to cluster around a regional referral facility of this scale.

Cumulative/induced issue	Contributing developments and pathways	Significance (before mitigation)	Management and mitigation
Water resources	Hospital operational demand together with KMTC campus and community demand on shared sources	Medium (16-35) – incremental pressure on shared sources	Water Resources Authority permitting for any borehole; storage tanks (≥130,000 litres); rainwater harvesting; water-efficient fixtures; demand monitoring under the ESMMP
Traffic and road safety	Hospital-generated trips added to KMTC, school and market traffic on local roads	Medium	Traffic Management Plan approved by the County Engineer; separated site access; signage and speed control near the school; emergency access routes
Waste and effluent loads	Healthcare and institutional waste from the hospital and neighbouring institutions	Medium – managed through dedicated infrastructure	On-site NEMA-licensed microwave-based non-burn treatment of the hospital's own waste; WWTP and Effluent Discharge Licence; annual environmental audits
Induced settlement and land use	Staff and student housing and commercial growth around the hospital-KMTC institutional node	Medium – gradual, plannable	Coordination with the County physical planning function (site lies in an institutional zone); phased utility planning; continuing engagement under the SEP

Cumulative/induced issue	Contributing developments and pathways	Significance (before mitigation)	Management and mitigation
Pressure on public services and utilities	Combined institutional growth in demand for power, water and roads	Low to Medium	Utility coordination during detailed design; standby power provisions; monitoring through county development planning fora

Overall, cumulative and induced impacts are assessed as of Medium significance before mitigation, reducing to Low-Medium with the management measures above, which are embedded in the ESMMP, the conditions of the NEMA licence, and the project's continuing engagement with the County Government's planning and utility functions. No cumulative effect was identified that would alter the overall conclusion of this ESIA.

Residual Impact and Risk Assessment

This section identifies and evaluates the impacts and risks that remain after full implementation of the mitigation measures committed in this report and the ESMMP, and provides the justification for their acceptability. Residual ratings apply the significance framework set out in the Impact Assessment Methodology section.

Aspect	Residual impact / risk after mitigation	Residual significance	Management and monitoring
Healthcare waste management	Residual handling and treatment risks despite segregation, licensed treatment and trained staff	Low-Medium	Medical Waste Management Plan; NEMA licence conditions; continuous treatment monitoring; annual environmental audit
Liquid effluent and water quality	Low-probability treatment plant upsets or non-conforming discharges	Low	WWTP operation and maintenance; Effluent Discharge Licence compliance monitoring; incident reporting to NEMA within 24 hours
Occupational health and safety	Inherent clinical and construction OHS risks that cannot be fully eliminated	Low-Medium	OSH plans and infection prevention and control protocols; PPE tracking and enforcement; site clinic and MoU arrangements; incident recording and investigation
Community health, safety and security	Traffic, security incidents and emergency events affecting the community	Medium	Emergency Preparedness and Response Plan; Traffic Management Plan; security management measures; community engagement through the SEP and GRM
Water demand	Continuing pressure on water resources during operation	Medium	Abstraction permitting; storage and rainwater harvesting; efficiency fixtures; demand monitoring
GBV/SEA and labour risks	Residual risk of misconduct or labour grievances despite preventive measures	Low	Codes of Conduct with site sign-off; confidential SEA/SH reporting channels; worker and community GRM; labour management requirements

Aspect	Residual impact / risk after mitigation	Residual significance	Management and monitoring
Institutional and capacity risks	Implementation shortfalls in E&S management during construction and early operation	Medium	Institutional Capacity Assessment and Capacity Strengthening Plan; supervising consultant oversight of the contractor; quarterly safeguard reporting; Bank implementation support missions
Emergency events (fire, outbreak, mass casualty)	Low-probability, high-consequence events inherent to a referral hospital	Medium	Hazard Vulnerability Assessment and hazard-specific response plans in the EPRP; drills and training; stockpile targets; inter-agency coordination

The residual risk profile of the proposed Bungoma Level 6 Teaching and Referral Hospital is considered acceptable: no residual impact is rated High; the remaining Medium-rated risks are typical of a referral healthcare facility of this scale, are backed by dedicated management instruments (ESMMP, MWMP, EPRP, SEP and GRM), and are subject to defined monitoring indicators, the Year-1 environmental audit required under the NEMA licence, and the Bank's implementation support and supervision. The substantial health-system benefits of the project further support the acceptability of the residual risks.

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLANS

8.1 Introduction

The MoH has developed the project ESMP to guide in the development of the recommended safeguard instruments based on the specific proposed project activities. The main objective of the project ESMP is to guide the PMT and the sub-project proponents on the E&S screening and subsequent sub-project E&S assessment, monitoring and reporting including development of sub-project specific plans that have to be developed in accordance with the African Development Bank (AfDB).

The project ESMF forms the basis of this ESIA prepared for the proposed construction of level 6 Hospital. The proponent acknowledges the fact that the proposed project activities will have some impacts on the biophysical environment, health and safety of its employees, workers, the wider public as well as the local residents. Thus, the focus will be on minimizing/mitigating the negative impacts and enhancing the positive impacts associated with the project activities through a program of continuous improvements. Environmental and social management and monitoring plans (ESMMPs) are important tools developed to assist in guiding the proponent/contractor in mitigating of potential environmental, social, health and safety risks and impacts of the proposed project. It is worth noting that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the ESMP. As such, the ESMP will be subject to regular periodic reviews on need basis. A number of activities will be carried out during the various phases of the proposed project to ensure adequate E&S impact management. These include, but are not limited, to the following.

8.2 Project Preparation

- i. Collection of baseline data in relation to vegetation type, ambient noise or air quality for monitoring purposes;
- ii. Training of the relevant project staff in E&S management;
- iii. Review and appreciation of project design details;
- iv. Inclusion of environmental health and safety specifications in Tender Documents, and development of CoC for the Contractor; and

8.3 Construction Phase

- i. Implementation of mitigation measures, through development of contractors' E&S Management Plan (C-ESMP) that shall include the following: OSH Plan, HIV/ AIDS management Plan, Waste Management Plan, labour management plan, Emergency Response Plan, COVID-19 management plan, among others. The C-ESMP should clearly spell out workforce management arrangements, worker accommodation arrangements, and construction material sourcing plans.
- ii. Enforcement of Environmental and OHS requirements (conditions at the contractor's yard, materials storage, condition of equipment, use of PPE, etc.) by the ESH Expert; as provided in the ESMP;
- iii. Environmental monitoring on air quality by a hired Air Quality Specialist as per the provision of the Air Quality Regulations of 2014 and noise and vibration levels by noise and vibration levels consultant as per the Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
- iv. The contractor should prepare an occupational /community safety and health plan and a C-ESMP for use during project construction, to be reviewed and approved by the PIU and HCF prior to start of any construction works.
- v. Enforcement of Environmental and OHS requirements (conditions at the contractor's yard, materials storage, condition of equipment, use of PPE, etc.) by the ESH Expert; as provided in the ESMP;
- vi. Environmental monitoring on air quality, noise and vibration levels by hired Air Quality Specialist as per the provision of the Air Quality Regulations of 2014 and noise and vibration levels consultant as per the Noise and Excessive Vibration Pollution) (Control) Regulations, 2009;
- vii. Disposal of construction solid, liquid and sanitary wastes in an acceptable manner and in conformance with regulations;
- viii. Ensuring that the contractor is following the CoC and environmental health and safety specifications as provided in the ESMP and C-ESMP;
- ix. Training the contractor's workforce in environmental and social awareness and responsibility (including COVID-19, STD/HIV/AIDS awareness); and

- x. Liaison with local administration and community leaders in matters of disturbance to the public, security issues,

i. ¹⁰MoH (2020). *Environmental and Social Management Framework for Kenya COVID-19 Emergency Response Project*. GoK, Nairobi.

and other matters arising from the project; and

- xi. Ensure engagement with the key stakeholders as identified in the SEP.

8.4 Operation Phase

- i. Development (or updating existing) and implementation of Health Safety and Environmental Management Plan, Waste Management Plan (for all hospital wastes), and Emergency Response Plan;
- ii. Treat and dispose of the hospital's own biomedical and general healthcare waste on-site using a modern, NEMA-licensed microwave-based non-burn medical waste treatment system, consistent with the project's Medical Waste Management Plan (MWMP); no external, third-party, or commercial healthcare-waste acceptance arrangement is proposed for this facility.
- iii. Monitoring of emissions, discharges, waste management (generation, treatment, disposal), HSE incidents (leakages and spills, accidents, etc);
- iv. Operation and maintenance, calibration and checking of all equipment as specified in respective manuals or as required by the regulations;
- v. Disposal of solid and sanitary wastes in an acceptable manner and in conformance with the regulations;
- vi. Compliance with OHS manual to be prepared by project proponent/ hospital management during the project operational phase;
- vii. Environmental and social performance reporting (based on evaluation of data collected, investigations) especially the air quality monitoring;
- viii. Monitoring the implementation of the SEP, LMP and the ESMMP (Security Management, GBV/SEA, Grievance management and monitoring, labour related risks-child labour, labour influx and workers complaints; and
- ix. Observing and implementing all the guidelines in HCWM and COVID-19 guidelines on infections spread control and other facets of human interactions vis-à-vis environmental bearing of these interactions.

Table 11: below describes how each of the main mitigation measures proposed should be implemented, the frequency, and the responsible party during the construction and operation phases. Monitoring indicators and means of verification have also been included in the ESMMP. It is imperative that this ESMMP forms part of contractors' bidding documents so that they can allocate resources required for implementing the proposed mitigation measures. Prior to mobilization, the Contractor should also prepare his own contractor-ESMP for review by the MoH E&S Specialist. In his schedule of works, the contractor must include all potential risks and mitigation measures, and the MoH E&S experts and the health facility public health officer should ensure that the schedule and ESMMPs are complied with. The responsibility of supervision of the implementation of all the proposed mitigation measures during construction and the defects liability period will lie with the MoH E&S specialist, public health officers, public works engineer (PWE), while the Contractor will be responsible for day-to-day operational matters of construction, which will include implementation of mitigation measures that s/he is responsible for. After the defect's liability period, responsibility for the operation and maintenance of the facility will rest with the hospital management and the County Government. **Table 12 (Environmental and Social Management Plan)** also presents an estimate of the costs of implementing the proposed environmental and social management and mitigation.

8.5 Decommissioning

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

8.6 Monitoring Team

The primary role of monitoring and supervision of project environmental and social compliance will fall squarely in County Government of Bungoma framework since they have the mandate and institutional framework enshrined in the County Government Act of 2012. Key players in the monitoring of compliance in the project will comprise MoH environmental and social specialists; the contractor; public works engineer (PWE) and Community liaison Officer. These expertise is to be brought on board to oversee specific aspects of the project during its implementation to ensure compliance. In addition, the contractor will be required to have a contractor environmental and social management plan (C-ESMP) to facilitate self-monitoring of impacts and implement recommended mitigation measures, during the construction and the defects liability phase. Under these phases, the contractor shall hire/employ an Environmental, Health Safety (EHS) Specialist as part of his employees. During the operation phase

hospital administration, health facility public health officer and community liaison officer will play a greater role to ensure the mitigation measures are implemented.

8.7 Key Monitoring Indicators

Key monitoring indicators proposed include:

- i. Vegetation loss and remedial restoration measures instituted;
- ii. Air quality and noise pollution control measures in place and how they operate;
- iii. Erosion control measures
- iv. Control measures for traffic accidents
- v. OHS measures for workers and the hospital staff
- vi. Public health observance
- vii. Waste management measures and performance;
- viii. Water Supply and Wastewater
- ix. Energy Use
- x. Material storage
- xi. Employment opportunities
- xii. HIV/AIDS interventions and related sexual behaviors among workers, and
- xiii. Labour recruitment by gender and age
- xiv. GRM including number of complaints received, resolved and closed within the project timeline
- xv. Number of stakeholders consulted during the sub-project period
- xvi. Number of staff inducted on safeguards requirements and those who have signed the CoC
- xvii. Security incidences and systems
- xviii. Occupational accidents/incidents among construction and hospital staff
- xix. Medical waste handling non-conformities (segregation, storage, treatment, and disposal deviations)
- xx. Water quality exceedances against applicable effluent and drinking water standards
- xxi. Number of community grievances logged, and proportion resolved within target timelines
- xxii. GBV/SEA prevalence reported in the facility

Table 10: Roles and Responsibilities

Entity	Roles and Responsibilities
MOH Environment and Social Specialists	➤ Ensure the project is screened including coordinating the impact assessment and audit. ➤ Preparation of the E & S instruments, review of the instruments and ensure they are cleared by the AfDB and disclosed prior to implementation of the project, ➤ Ensure the environmental and social requirements are prescribed in contractors bidding documents ➤ Periodic monitoring and surveillance of all project's investment to ensure compliance with the mitigation measures as set out in the ESMMP. ➤ Required to provide monthly, quarterly environmental & social status of the project progress to feed into the overall project progress reports ➤ Report immediately to the AfDB upon occurrence of any significant environmental, social, or health and safety incident ➤ Advice on implementation of corrective actions wherever necessary.
County government of Bungoma Housing, Lands urban Renewal, urban Planning and Projects Management	➤ Supervise the Contractor and monitor works at all sites in particular; ➤ Provide specific technical advice on mitigation measures for construction and operational activities related to the project, ➤ Supervise the implementation of the approve project design, ➤ Supervise project's implementation for construction progress with regard to timelines and quality.
County of Bungoma Technical Team Labour / Probation Officer, Labour Officer, Engineer, others	➤ Mainly to ensure that respective activities are being done in compliance with the relevant laws, regulations and guidelines. ➤ Contractors have access to construction materials, ➤ Mobilisation of the communities to keep project on truck, ➤ Monitoring of the project works with regard to the technical issues, ➤ Monitoring project's compliance implementation with the mitigation measures set out in the EMMP and other contractual requirements ➤ Advice on implementation of corrective actions where required, and ➤ Recruit employees according to the Employment & Labour Act. ➤ Develop and fully implement, including all necessary resources, all operational phase EHS plans
Contractor's Community Liaison Officer/ Sociologist.	➤ Develop the Contractor ESMP focusing on social Issues with reference to the relevant documents i.e., client ESMP, NEMA licence and any contractual condition ➤ Display and educate the workers on the workers' code of conduct, ➤ Work with the Clerk of Works to address worker's and community concerns in a timely manner, ➤ Liaise with the HIV/AIDs service provider, undertake HIV/AIDs sensitization and organize-Special clinic days for the workers and the community adjacent to the site. ➤ Create awareness on importance of child protection and GBV in relation to the project; and as appropriate organize counselling sessions for any victims, workers and the adjacent community. ➤ Develop a Social, Gender and HIV/AIDs/ Child protection Checklist, COC, stakeholder engagement/ communication plan and report regularly on progress ➤ Educate the communities on the site operations and the Grievance Redress System, ➤ Make available the telephone to facilitate community liaison. ➤ Establish a grievance handling committee; create awareness on mechanism/committee/process. ➤ Manage the complaints log and act as a secretary to the Grievance Committee, and ➤ Manage the environmental and social impacts and implement mitigation measures as stipulated in the ESMP. ➤ Provide information to PIU and HCF related to health safety and Environment (HSE) performance, and immediately report any significant environmental incident or worker accident

Entity	Roles and Responsibilities
Contractor's HSE personnel	➤ Develop the Contractor ESMP based on the Client ESMP, NEMA certificate and any contractual conditions ➤ Develop traffic management plan, ➤ Ensure safe storage of the materials on site, ➤ Prepare a waste management Plan for the site and ensure its implementation ➤ Prepare safety management plan for the site and ensure safety on site ➤ Ensure staff regular orientation on environment management and safety drills, and ➤ Display of the ESMP and Safety information. ➤ Ensure availability and access of drinking water at the work site by all workers.

Entity	Roles and Responsibilities
	➤ Develop an Environment, Health and Safety Checklist, and report regularly on progress. ➤ Take responsibility for mitigation and management of potential environmental and social issues on site; ➤ Organize and maintain briefing session records and mitigation and monitoring documentation on all matters of HSE; ➤ Respond to site inspection findings; ➤ Receive and respond to any complaints from external parties on project issues on HSE ➤ Institute management of accidents (if they occur), keep a log book/ sheet ➤ Follow up on the health insurance requirements including compensation related to accidents (in case of any occurrence). ➤ Provide information to PIU and HCF related to HSE performance, and immediately report any significant environmental incident or worker accident
Public Works Engineer	➤ Supervision and manage all the sites with regard to the administration of the Construction Contracts including E&S management compliance ➤ Review and approve contractor ESMP and other plans ➤ Ensure compliance with the ESMP etc. and other laws ➤ Ensure that payment certificate includes environment and social costs duly endorsed, ➤ Responsible for ensuring that, the office block with its associated facilities are constructed in accordance with the approved designs, ➤ Responsible for approvals of the construction materials to be used in the project, ➤ Undertake supervision and monitoring of environmental and social issues and report to the Hospital Administrator, and ➤ Clear contractors' compliance with managing environmental and social risks.
Directorate of Occupational Safety and Health Services (DOSHS)	➤ Ensure compliance with the provisions of the Occupational safety and health Act 2007 and promote safety and health of workers, and ➤ Issue the Certificate of Workplace for the construction site and supervise the implantation of the conditions in the certificate.
The National Construction Authority (NCA)	➤ Issuing of the construction permit for the construction site and advising the Hospital over the construction related activities on value for money. ➤ Ensure that the contractor is licensed by NCA,
National Environment Management Authority (NEMA)	➤ Issuance of the EIA Certificate and supervise and co-ordinate all matters relating to the environment and to be principal arm of government in the implementation of policies relating to the environment. ➤ Carry out site inspection to ensure compliance with the EIA conditions of approval.
African Development Bank	➤ Carry out the Implementation Support Mission periodically to ascertain the level of implementation in line with the Environment and Social Commitment Plan and other environment and social instruments prepared for the project namely: ESMF, ESIA/ESMP.

Table 11: : Environmental and Social Risks and Mitigation Measures during Planning and Designing, Construction and Operation Phase

Key Activities	Potential Environment & Social Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Planning and Designing Phase			

Key Activities	Potential Environment & Social Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Designs for the construction of level 6 hospital	Risks of poor siting of the facilities or non-adherence to MOH guidelines, Improper designs.	▪ Liaising with the relevant Technical Government department in development of the designs, ▪ Proper siting of the waste treatment facility and ensure harmony with the hospital layout and planning, ▪ Ensure all the legally required permits are obtained prior to undertaking the construction activities, ▪ The contractor bidding documents should contain clauses on Environmental Social Health and Safety (ESHS) requirements to guide the contractor on the key requirements, ▪ PMT specifically the Environmental and Social Expert should ensure the design requirements are adhered to in the planning stage	County Government, MOH E&S Expert
Construction Phase			
Interference with the physical setting	Site clearance and excavation works that will interfere with physical setting	▪ The contractor should ensure that there is minimal disturbance to the topography of the area; ▪ The project designs should be such that they do not interfere with local drainage or change the topography or introduce physical changes that are not in harmony with the physical setting of the project area. Any topographical change needed should be done to avoid soil erosion or storm water drainage issues;;	County Government, MoH E&S Expert, Contractor
		▪ The proposed hospital and associated structures should be aesthetically acceptable to blend in with the surrounding environment and other hospital facilities; ▪ Restoration shall be undertaken to ensure that the original setting is as much as possible retained; ▪ The proponent should observe measures stipulated in the ESMP for sustainable project implementation.	
Solid wastes	Improver management of construction related solid wastes	▪ Contractor shall prepare waste management plan, as part of the C-ESMP, to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) before commencement of any works, which should promote waste minimization and recycling. ▪ Contractor shall be responsible for handling and disposal of all construction and related waste. ▪ Encourage efficient use of materials to as much as possible avoid and minimize waste production. ▪ Ensure wastes are recycled / reused before opting to dispose of. ▪ Designate temporal waste / garbage holding areas at site. ▪ Use of waste receptacles that encourage segregation to hold waste on site before its collection. ▪ Minimize production of waste by practicing use of durable, long-lasting materials that shall not need to be replaced often. ▪ Engage NEMA registered waste contractor to dispose of hazardous waste and have waste destruction certificate and waste transfer notes. ▪ Waste disposal by open burning shall not be permitted and signage should be erected. ▪ Fine earth materials (sand and murram) should be covered using tarpaulins during haulage to prevent spillage, dust and particulate matter emission.	County Government, NEMA, MoH E&S Expert; Contractor

		▪ The proposed hospital and associated structures should be aesthetically acceptable to blend in with the surrounding environment and other hospital facilities; ▪ Restoration shall be undertaken to ensure that the original setting is as much as possible retained; ▪ The proponent should observe measures stipulated in the ESMP for sustainable project implementation.	
Management and disposal of spoil materials	Poor management and disposal of spoil materials which could be hiding and breeding sites for rodents	▪ Maximizing the re-use of excavated materials in the works as far as feasible to ensure that no permanent spoil dumps are created, ▪ Spoil dumping should be away from any water resources to avoid possible water pollution from siltation/ sedimentation, ▪ Extra loads of marram should be used to make good of any worn-out sections of the walkways/ driveways within the hospital; this should be done in conjunction with the hospital management; ▪ Besides, the local community should be given the first priority while disposing the extra loads of marram; this should be done at a consideration (reasonable fee) or better still donated in case of public use; and ▪ Properly disposing off the spoil in an area identified by the contractor team and approved by the confirmed land owners, hospital management as well as by NEMA; care should be taken to avoid degrading land that could otherwise be used for productive purposes	County Government, NEMA, MoH E&S Expert; Contractor
Noise and vibration generation	Noise emissions from machineries and vibration from construction activities	▪ Contractor to coordinate with HF administration on acceptable days and times for work, and in particular related to any specific works that may cause more significant noise and/or for extended periods within a day, ▪ Inform the health facility administration when constructions activities are likely to generate excessive noise, ▪ Noise suppression measures must be applied to all construction equipment such as; Install portable barriers to shield compressors and other small stationary equipment, cover engine of generators where necessary; ▪ Use of quiet equipment (i.e., equipment designed with noise control elements such as those that utilize electricity as opposed to those which utilize diesel or petrol) and ensure all the equipment used on site are well maintained and in good working condition, ▪ Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible; ▪ Provision of appropriate PPE (hearing protection - ear muffs/plugs) to the workers and any other person visiting the construction and renovation site especially in work areas with heightened noise levels, ▪ Limit construct activities during day time, between 8am and 5pm; ▪ Consider manual labour-based construction methodologies; and	County Government, NEMA, MoH E&S Expert; Contractor

		Construction workers should be made aware of the sensitive nature of the work place and advised to limit verbal and other forms of noise.	
Air pollution	Dust and gaseous emissions are likely to be emitted during excavation and construction activities	- Minimizing the number of motorized vehicles on use and limit vehicle speeds to a maximum of 10Km/Hr; - Make use of predetermined routes when bringing in construction material or in transportation of solid waste generated; - Periodically service all the equipment and machinery and ensure they are in good working condition to minimize emissions; - Wet all active construction areas as and when necessary to reduce dust; and - Cover the stock piled construction materials and spoil generated from the excavations, - Provide appropriate PPE (dust mask) to workers and enforce on use, - When transporting construction material, ensure vehicles are covered with tarpaulins in order to minimize on dust emissions; and - Burning of solid waste material shouldn't be permitted at project site.	County Government, NEMA, MoH E&S Expert; Contractor
Vegetation loss	The site already cleared of vegetation	- The contractor will ensure proper demarcation of the project area to be affected by the construction works to limit vegetation removal to project site, - Strict control of construction vehicles to ensure that they operate only within the area to be disturbed and designated access routes, - Ensure retention of grass and mature trees close to the site to the extent possible and - Re-vegetate the area in the disturbed sections and surrounding environment after completion of works,	County Government, NEMA, MoH E&S Expert; Contractor
Accidental spills and leakages	Fuel lubricants, oil and grease, paints and pest control substances may have immediate impact on local water resources	- Temporal storage on site of all hazardous /toxic substance will be in a bunded storage area to ensure containment of spillages/leakages; - Ensure proper storage of chemicals / materials, and if possible, in secondary containers just in case of accidental puncturing, and away from storm water runways or exposure to weather elements such rains - Ensure proper handling, storage and disposal of waste oil, lubricants, oil filters and fuel from vehicles. Hazardous waste would be contained and properly disposed by licensed hazardous waste handler, - The contractor should provide appropriate PPE (medical mask, gowns, heavy duty gloves, eye protection and boots) to workers on site, and - During the course of the construction works, temporary drainage channels should be constructed to encourage dispersal of meteoric waters, - Contractor to have spill prevention and response procedure including all necessary equipment and that of workers are trained. - Contractor to immediately report to HCF and Project PIU any spills or accidental releases	County Government, NEMA, DOSH, MoH E&S Expert; Contractor
Extraction and use of construction materials	Construction material extracted from quarries and other natural resources banks such as rivers	- The contractors should source construction materials such as sand and ballast from registered and NEMA licensed quarry and sand mining firms/groups and/or from suppliers of such firms are expected to apply acceptable environmentally friendly processes in their operations, - The contractor should adhere to the procurement plan and only order for what will be required through accurate budgeting and estimation of actual construction material requirements; and - The proponent should only approve final payment to the contractor after confirmation that all excavated sites have been backfilled and other degraded areas have been restored.	County Government, NEMA, MoH E&S Expert; Contractor

		Construction workers should be made aware of the sensitive nature of the work place and advised to limit verbal and other forms of noise.	
Increased water demand	Increased water demand for mixing materials, wetting surfaces or cleaning/curing completed structures	- The proponent, through the contractor, shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use, - Install a discharge meter at water outlets to determine and monitor total water usage and enable the contractor to pay for the water he utilizes or wastes. Alternatively, the contractor should source water from licensed water vendors who can supply by use of water bowsers; - Encourage prompt maintenance of water pipeline leaks, and - Upon commissioning of the hospital the hospital management will be required to supply water to the facility at its cost for normal operations. The hospital is already connected to piped water supply. We recommend that water conserving taps that turn-off automatically when water is not being used be installed at the facility coupled with waterless urinals and cisterns of low water volume use.	County Government, MoH E&S Expert, Contractor

Occupation/Public Health and Safety Impacts	Occupation/Public Health and Safety Impacts	▪ Contractor is expected to comply with OSH rules and regulations as stipulated in the OSHA, 2007. Ensure the work place is registered by the DOSHS; ▪ All construction workers should be sensitized on the health and safety requirements while at the project sites and risks associated with construction work; ▪ Workers should be provided with suitable PPE; An approved unused □ overall; □ Safety gumboots; □ Right grade hand gloves; □ The recommended goggles; □ Helmet; □ Right grade respirators; □ and Ear Plugs. ▪ Provision of clean and accessible sanitary facilities and drinking water to workers; ▪ Barricade the active work sites to limit entry of unauthorized people such as health staff and patients. Use of screens and nets to avoid flying debris and ensure good housekeeping at the construction site; ▪ Trenches over 0.5m deep or wherever soil conditions dictate should be secured against accidental fall by workers and the public; ▪ Install information and safety signage along the work areas; ▪ Site should have an accessible grievance redress mechanism to allow workers/community to raise safety issues and propose improvements of project sites ▪ Electrical works should be done by a trained and certified experienced personnel, ▪ Task based risk assessment should be done on daily basis to assess the risks and hazards thereby prescribing the appropriate prevention measures; and ▪ A safety officer shall be designated at the construction site and shall maintain a log of incidents (safety register) on site and report on any fatalities related to the project within 24 Hrs. ▪ The contractor complies with provisions of WIBA, 2007 for all the workers engaged	County Government, DOSH, MoH E&S Expert; Contractor
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Increased in HIV/AIDS Prevalence and other STIs	Increased in HIV/AIDS Prevalence and other STIs	- Hiring workers from the local community to prevent social challenges associated with labour camps; - Education and sensitization of workers and the local communities on HIV/AIDS and STIs including provision of condoms to the project team and the public; - The contractor has to institute HIV/AIDS awareness and prevention campaign amongst workers and the local communities for the duration of the contract e.g., erect and maintain HIV/AIDS information posters at prominent locations as specified by the PWE; - The contractor has to ensure that staff are made aware of the risks of contracting or spreading sexually transmitted diseases	County Government, MoH E&S Expert; Contractor
Social Risk Management	Significant increase in population within the site and the facility	- The workers should be hired from within the locality hence limited movement or very short distances from their homes; - The skilled labour force from far to reside in hotels in close proximity to the project area; - The contractor to ensure that the hiring process is done with fairness and gender sensitivity; - Effective contractual obligations for the contractor will be done with workers to adhere to the mitigation of risks against labour influx. - The contractor to keep proper and updated records of the labourers on site while avoiding child and forced labour; - Fair treatment, non-discrimination and equal opportunity of all labourers. - Contractors and contractor worker to sign Code of Conduct with provisions of individual responsibility	County Government, Labour officer, MoH E&S Expert; Contractor
	Human rights and gender inequalities / violation	- During recruitment of workers there will be no discrimination against one gender either by design or oversight; - There will be equal compensation for excess working hours; - Contractors will ensure there is appropriate sanitary, health and safety facilities measures, such as PPE; - Contractor to engage an expert to conduct a training on GBV/SEA; - The contractor to ensure provision of the necessary basic sanitary facilities according to the gender (separate for men and women) - Contractor to put in place mechanisms for reporting and addressing GBV/SEA and other human rights violations. - Contractor to ensure that workers have an access to a GRM for workers	County Government, Gender Officer, MoH E&S Expert; Contractor
	Gender based Violence/Sexual Exploitation and Abuse	- The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. - The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. - The contractor should communicate to the workers that there should be no or minimal interaction with the patients. - Contractor to ensure that workers are sensitized on GBV/SEA management - Document GBV/SEA referral pathways for victim information and support - Ensuring that the GBV/SEA one pager is placed on strategic points of the facility - Develop an Action plan of all GBV/SEA incidences to avoid recurrence	MoH E&S Expert, County Gender Officer, NGECC; Contractor
	Grievance arising from construction activities	- A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed. - Put in place grievance mechanisms e.g., - Assigning a contractor based GRM Focal Person - Putting in place channels to allow people complaint- e.g., Telephone, Email, registers, What's up platform for workers, suggestion box among others - Ensuring documentation of complaints- Complaints registers - Raise awareness to all stakeholders including project workers on the existing GRM and sensitizing them on the need to register their dissatisfaction with the contractor or the facility	MoH E&S Expert, CLO, County Children's Officer, Contractor, Hospital Management

		- Resolve complaints within the project timeline (acknowledging within 7 days and resolving within 21 days or as soon as possible (within 24 hours for GBV/SEA complaints) - Ensure complaints reporting to the PMT on a monthly basis - using the annexed formats	
	Child labour	- The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including on SEA - All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behavior - Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014. - Wherever possible, ensure that another adult is present when working in the proximity of children. - Not to invite unaccompanied children to workers' home, unless they are at immediate risk of injury or in physical danger. - Refrain from physical punishment or discipline of children). - Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury. - Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Kenya's Employment Act Cap 226 of 2007 Part VII on protection of children against exploitation	MoH E&S Expert, Project Manager, Contractor, Hospital Management
	Conflict and insecurity	- The contractor should explore on the possibility of having a different access to be able to enhance security and differentiate between patients, visitors and workers accessing the site. - The contractor, in conjunction with the hospital management, should hire more security personnel and ensure they are well inducted to address security related issues as they arise. - Prepare labour management plan (LMP) to guide recruitment of the workers in conjunction with local leaders, - Limit worker's interaction where possible with community members, and - Proper management of shared resources e.g. Water. - It is also recommended that the construction workers be provided with easily identifiable uniforms - Raise awareness on the GRM mechanisms - Adequate consultation with surrounding communities and workers regarding the construction works - Contractor security personnel should sign the Code of Conduct that discourages the use of force unless for defensive purposes.	
	Labor disputes	- Fair terms and conditions shall be applied for project workers (guided by relevant labour laws); - The project shall also have GRMs for project workers (direct workers and contracted workers) to promptly address their workplace grievances; - Project shall abide by the provision of the projects LMP, and - The project shall respect the workers' right of labor unions and freedom of association; - Ensure overtime is recorded and compensated - Register contractor workers with WIBA	County Government, Labour Officer, Local Chief, MoH E&S Expert; Contractor
Operational Phase			

Waste management	Improper HCWM	- Waste should be identified and segregated at the point of generation. Non-hazardous waste, such as paper and cardboard, glass, aluminum and plastic, should be collected separately and recycled. Food waste should be segregated and composted. Infectious and / or hazardous wastes should be identified and segregated according to its category using the colour-coded system. - Prevention and minimization of the production of waste (integrating systems and practices to avoid the creation of waste and management and equipment and consumables purchasing). - Reuse or recycling of wastes to the degree feasible - Seal and replace waste bags and containers when they are approximately three quarters full. Full bags and containers should be replaced immediately.	County Government, NEMA, MoH E&S Expert,
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		▪ Identify and label waste bags and containers properly prior to removal. ▪ Transport waste to storage areas on designated trolleys / carts, which should be cleaned and disinfected regularly. and never transport infectious and no-infectious waste together ▪ Instructions on how to handle the infectious waste from isolation and treatment centers should be made available to the waste handlers. ▪ Ensure safety and health of the HCW handlers through provision of appropriate PPEs, vaccination against Hepatitis B and tetanus as well as provision of post-exposure prophylaxis (PEP). ▪ Waste storage areas should be located within the hospital and sized to the quantities of waste generated, ▪ Unless refrigerated storage is possible, storage times between generation and treatment of waste should not exceed 48 hours during cool season, 24 hours during hot season. ▪ Packaging containers for sharps should be puncture-proof ▪ Ensure microwaved and shredded waste are secured to prevent pieces of shredded waste getting scattering as particles during transportation to final disposal site. ▪ Routine monitoring of shredded waste for quality assurance of the de-contamination. ▪ Properly transport treated waste to disposal facility (i.e.the inert waste to sanitary landfill) ▪ Seek an operational license for the waste treatment equipment (the MWTM) from NEMA to ensure compliance with the EMCA (Waste Management Regulations, 2006.	
Fire risk	Risk of fire outbreak	▪ Provide serviceable fire safety equipment and train workers on use ▪ Provide adequate and strategically located fire safety equipment, including sand buckets, fire extinguishers, hose reels, and fire hydrants across all critical areas of the hospital (wards, theatres, laboratories, stores, and waste treatment units), and ensure regular inspection, servicing, and maintenance. ▪ Ensure all hospital staff, including healthcare workers, support staff, and waste management personnel, receive basic training in fire prevention, detection, and control measures. ▪ Clearly display fire emergency contacts and evacuation procedures at visible and accessible points throughout the hospital, including corridors, wards, and high-risk areas. ▪ Develop a comprehensive Fire Emergency Management Plan in collaboration with the hospital administration, safety officers, and relevant public health authorities, and ensure all staff are trained on its implementation. ▪ Conduct regular fire drills across all departments to assess preparedness, test emergency response systems, and identify gaps for continuous improvement. ▪ Install and maintain functional fire detection and alarm systems (smoke detectors, heat sensors, and alarm panels) throughout the facility to enable early warning and rapid response. ▪ Design and maintain clearly marked emergency exits, fire assembly points, and unobstructed escape routes to facilitate safe evacuation during fire incidents. ▪ Ensure proper storage and handling of flammable materials, medical gases, and chemicals in designated, well-ventilated areas with appropriate safety signage. ▪ Establish a trained fire response team within the hospital responsible for coordinating fire emergency actions and liaising with external emergency services. ▪ Carry out routine fire risk assessments and safety audits to ensure compliance with national fire safety regulations and standards, and implement corrective actions promptly. ▪ Provide continuous refresher training and awareness programs on fire safety for all staff to reinforce a culture of safety within the hospital.	County Government, DOSH, MoH E&S Expert

		▪ Identify and label waste bags and containers properly prior to removal. ▪ Transport waste to storage areas on designated trolleys / carts, which should be cleaned and disinfected regularly. and never transport infectious and no-infectious waste together ▪ Instructions on how to handle the infectious waste from isolation and treatment centers should be made available to the waste handlers. ▪ Ensure safety and health of the HCW handlers through provision of appropriate PPEs, vaccination against Hepatitis B and tetanus as well as provision of post-exposure prophylaxis (PEP). ▪ Waste storage areas should be located within the hospital and sized to the quantities of waste generated, ▪ Unless refrigerated storage is possible, storage times between generation and treatment of waste should not exceed 48 hours during cool season, 24 hours during hot season. ▪ Packaging containers for sharps should be puncture-proof ▪ Ensure microwaved and shredded waste are secured to prevent pieces of shredded waste getting scattering as particles during transportation to final disposal site. ▪ Routine monitoring of shredded waste for quality assurance of the de-contamination. ▪ Properly transport treated waste to disposal facility (i.e.the inert waste to sanitary landfill) ▪ Seek an operational license for the waste treatment equipment (the MWTM) from NEMA to ensure compliance with the EMCA (Waste Management Regulations, 2006.	
Occupational Safety and Health Risks	Occupational Safety and Health Risks for Healthcare workers	▪ Ensure the implementation of standard precautions and transmission based precautions in line with national guidelines for IPC in healthcare facilities, the MOH waste Management plan (2016 - 2021). These shall be customized through the development of the health facility specific instruments, among this include facility level infection control and waste management plan that incorporate among others health and safety aspects which must contain appropriate safety measures; ▪ Update and implement HCF emergency response plan. ▪ Ensure identification of risks (Job Risk Assessment) and instituting proactive measures, ▪ Train the healthcare workers on the potential OSH risks in relation to COVID-19, of particular interest are the operators of the MWTM, who must be trained on the contents of the health and safety plan including on the general functioning of the treatment facility, including heat recovery and flue-gas cleaning technologies, where appropriate; Health, safety and environmental implications of treatment operations; Technical procedures for operation of the plant; Recognition of abnormal or unusual conditions; Emergency response, in case of equipment failures and alarms; Maintenance of the plant and record keeping; Surveillance of the final waste treated product ▪ Provision of adequate and required personal protective equipment (PPE) to health workers and enforce on use. This includes: single use medical mask, gown, Apron, eye protection, boots or closed shoes. ▪ Provision of a system for disinfection of the multi-use PPE if not available.	County Government, DOSH, MoH

		▪ Implementation of systemic risk management plan comprising risk prevention, evacuation of accident victims, evaluation and improvement measures. ▪ Limit access to the waste treatment area only to authorized persons; ▪ Warning and safety signage to be placed at the areas within the microwave site; ▪ The waste holding area/chambers should be well sheltered from direct rainfall, sunlight and strong winds but should be adequately aired; ▪ All machinery and equipment involved in the waste treatment and disposal process should be washed and disinfected prior to leaving site; ▪ Thorough, complete and up to date records on healthcare waste management , incidents and accidents and grievances should be kept. ▪ Provide adequately stocked first aid kit to be placed at strategic locations to allow ease of access by workers on-site;	
	Occupational health and safety risk to waste handling operators	▪ The MoH waste management strategic plan, guidelines and infection control and waste management plan should be applied, observed and customized through the development of the facility specific instruments. This should be augmented by guidelines issued by WHO; ▪ All the operators should be in the appropriate PPE during operations of the medical waste microwave; ▪ There must be a health and safety plan that is kept on-site which must contain appropriate safety measures; ▪ The operators of the medical waste microwave must be trained on the contents of the health and safety plan; ▪ Provide adequately stocked first aid kit and ensure placed at strategic locations to allow ease access by workers on-site; ▪ Provide serviceable fire safety equipment and workers on use, ▪ Regular fire safety drills should be undertaken to gauge the levels of preparedness of the operators, ▪ Ensure good documentation and inventory on waste received and treated, ▪ Maintenance of an accident incident log book on site ▪ Carry out periodic measurement of occupational electromagnetic frequencies (EMF) exposure for the workers	County Government, DOSH, MoH E&S expert,
Environment pollution	Solid waste generation	▪ The management of the hospital shall prepare a waste management plan to be implemented at the site (storage, provision of bins, site clean-up, bin clean-out schedule, etc.) to promote waste minimization and recycling. ▪ The hospital management shall be responsible for handling and disposal of all waste originating from the MWTM area, ▪ Encourage efficient use of materials to as much as possible avoid and minimize waste production. ▪ Designate temporal waste / garbage holding areas at site. ▪ Use of waste receptacles that encourage segregation to hold waste on site before its collection. ▪ Engage NEMA registered waste contractor to dispose of hazardous waste and have waste destruction certificate and waste transfer notes. ▪ Waste disposal by burning shall not be permitted and signage should be erected. ▪ wastes generated from maintenance of MWTM facility should be collected and disposed as per the management and handling guidelines of medical waste including decontamination, reuse and recycling	County Government, MoH E&S Expert, NEMA
Community Health risk	Improper waste disposal	▪ Targeted procurement of only required pharmaceutical, equipment, and other medical supplies in small quantities; ▪ Ensure regular monitoring of solid, liquid waste management practices and waste treatment; ▪ Ensure proper management of pharmaceutical waste by engaging a consultant to develop measures and guidelines for each facility in accordance with the national healthcare waste management plan; ▪ Ensure proper sewage management; ▪ Install appropriate drainage channel within the health facility;	County Government, DOSH, MoH E&S Officer

		▪ The hospital public health should undertake regular assessment of waste generation quantities and categories to facilitate waste management planning, and investigate opportunities for waste minimization on a continuous basis, ▪ Separate residual chemicals from containers and dispose of the containers to reduce generation of secondary contamination especially waste water; ▪ Seek NEMA license for the MWTM,	
Water Use at the Hospital	Increased water uses and liquid waste generation	▪ The MWTM shelter construction will provide for a toilet connected to the septic tank system. ▪ Designs have to provide for the MWTM shelter to be fitted with easy to clean tiles on their walls as well. ▪ Put roof gutters to collect rainwater from the facility iron sheet during the rainy season, ▪ Encourage prompt maintenance of water pipeline leaks, ▪ Install water conserving taps that turn-off automatically when water is not being used, ▪ The septic tank should never be allowed to spill on land and it should be exhausted by a NEMA licensed exhauster ▪ Pre-treat wastewater from the health facility before release to the septic tank.	County Government, MoH E&S expert,
Use of electricity	Increased energy use	▪ Use load shedding on lighting system and other equipment to avoid creating peaks in demand, ▪ Turn lights off using automated sensors or a building automation system, ▪ Install solar energy resources to provide for additional security lighting within the hospital in case of power outages ▪ Optimization of the load being treated at any one time for maximum efficiency.	County Government, DOSH, MoH E&S Expert,
Social Risk Management	GBV/SEA	▪ Continues sensitization of staff on SEA risk management ▪ Provision of GRM channels for reporting SEA cases ▪ Ensuring that the GBV/SEA one pager is placed on strategic points of the facility ▪ Document available GBV/SEA referral pathways for victims' information and support ▪ Develop an Action plan of all GBV/SEA incidences to avoid recurrence ▪ Ensure the facility is well lid to avoid hiding places for SEA perpetrators ▪ Provision of separate helping places for men and women ▪ The hospital will continue to mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule. ▪ To include prohibition of GBV/SEA in Employees Code of conduct e.g. discouraging the use of inappropriate language or behavior, harassing, abusive, sexually provocative, demeaning or culturally inappropriate language towards women or children. ▪ Prohibiting sexual activity with children under 18 years—including through digital media and promoting respect to the rule of law in respect to children's rights.	Hospital management, County Gender Officer
	Security and conflict	▪ The hospital will install CCTV cameras at strategic point to enhance security ▪ The hospital will train the microwave operators periodically to enhance proper maintenance of the microwave ▪ The hospital suggested to employ more police force to improve on the security situation at the hospital ▪ It was suggested that the hospital was looking on raising the walls on the lower side which was acting as a security threat fir the hospital ▪ The security guards should ensure proper surveillance of the facility ▪ Security guards should be sensitized on the CoC and the provision of the Security management plan	Hospital Management, PHO, Security team

		▪ The hospital public health should undertake regular assessment of waste generation quantities and categories to facilitate waste management planning, and investigate opportunities for waste minimization on a continuous basis, ▪ Separate residual chemicals from containers and dispose of the containers to reduce generation of secondary contamination especially waste water; ▪ Seek NEMA license for the MWTM,	
	Increased grievances	▪ The hospital should create awareness about the GRM mechanism in place to all workers and patients ▪ Provide affected people with avenues for making complains or resolving any dispute that may arise during the course of stay.	Hospital Management ,

		▪ Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants ▪ Avoid the need to resort to judicial proceeding, unless the complainant decides that the process provided has failed	County Labour Officer
Decommissioning			
Equipment/ Machine decommissioning	▪ Soils Degradation	▪ All machinery, equipment, structures and partitions that will not be used for other purposes must be removed, fumigated, containerized for disposal by NEMA licensed waste handler. ▪ Where recycling/reuse of the, equipment, implements, structures, partitions and other demolition waste is not possible, the materials should be taken to a licensed waste disposal site	▪ MoH, DOSH, MoH E&S Expert, CDE, CPHO, PWE
Structures decommissioning	▪ Soils degradation / water Resources pollution / air pollution	▪ All foundations must be removed and recycled, reused or disposed of at a licensed disposal site ▪ All anchorages plinths must be removed, recycled, reused or disposed by NEMA licensed waste handler. ▪ Use dust screens and nets to mitigate on dust/particulate matter	▪ MoH E&S Expert, CDE, CPHO, PWE
Demolition Wastes	▪ Soils pollution / air pollution / water resources pollution	▪ Use an integrated solid waste management system i.e. through hierarchy of options 1. Source reduction 2. Recycling, 3 Composting and reuse 4. Combustion. 5 Sanitary land-filling ▪ Provide appropriate waste skips that encourage waste segregation ▪ Ensure proper waste collection, storage and disposal of waste generated ▪ Donate reusable demolition waste to charitable organizations, individuals and institutions ▪ Properly dispose of the demolition debris when no longer considered useful	▪ MoH E&S Expert, CDE, CPHO, PWE
Project Decommissioning	▪ OHS/ Public Safety	▪ The decommissioning Contractor should have a well-developed EHS plan for the decommissioning exercise certified by a Qualified EHS Officer. ▪ A qualified EHS officer should be stationed at the decommissioning site during the entire decommissioning period to ensure compliance to Health and safety plan. ▪ Ensure the workers are provided with adequate and appropriate PPE (dust mask, ear plugs, helmets, gloves) on site and enforce on use ▪ While working at height provide safety harnesses and scaffolding equipment ▪ Fence off/ barricade the site prior to demolition to minimize health and safety risks ▪ Restrict demolition activities during day time between 0080hrs to 1700 hrs. ▪ Provide adequately well stocked first aid kit and ensure one of the workers can administer first aid.	▪ MoH E&S Expert, CDE, CPHO, PWE
Site Rehabilitation	▪ Soils pollution/water resources pollution/ Air pollution	▪ Proper treatment of the site should be carried out (Decontamination)	▪ MoH E&S Expert, CDE, CPHO, PWE

		▪ Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants ▪ Avoid the need to resort to judicial proceeding, unless the complainant decides that the process provided has failed	County Labour Officer
	▪ Backfilling excavation sites	▪ Ensure the contractors backfill and rehabilitate excavated sites before final payment	
Re-vegetation	▪ Soils degradation/ water resources pollution/ air pollution	▪ Implement an appropriate re-vegetation programme to restore the site to its original status ▪ Consider use of indigenous plant species in re-vegetation	
		▪ Trees should be planted at suitable locations so as to interrupt sight lines (screen planting), between the adjacent residential area and the development.	
Social risk management	▪ GBV/SEA	▪ The hospital will mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3 Gender Rule. ▪ The existing community structures headed by location chiefs should be involved in local labour hire, emphasize the requirement of hiring women, youth and people with disability. ▪ Protecting Human Risk Areas Associated with, Disadvantaged Groups, interfering with Participation Rights and interfering with Labour Rights. ▪ To include promotion of human rights, including gender equality and equity in Employees Code of conduct ▪ Ensure safe employment for women, including training for all staff on SH COC, sex-disaggregated latrines, regular consultation with female employees and other measures§ to ensure physical safety and dignity of female employees	▪ Hospital management, County Gender Officer

		- GBV constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment. All forms of GBV including grooming are unacceptable be it on the work site, the work site surroundings, or at workers camps. Prosecution of those who commit to be pursued. - Treat women and children (persons under the age of 18) with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. - Do not use language or behavior towards women or children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate. - Sexual activity with children under 18—including through digital media is prohibited. Mistaken belief regarding the age of a child and consent from the child is not a defense.	
	Security and conflict	- The hospital will install CCTV cameras at strategic point to enhance security - The hospital will train the microwave operators periodically to enhance proper maintenance of the microwave - The hospital suggested to employ more police force to improve on the security situation at the hospital - It was suggested that the hospital was looking on raising the walls on the lower side which was acting as a security threat fir the hospital - The security guards should ensure proper surveillance of the facility - Security guards should be sensitized on the CoC and the provision of the Security management plan	Hospital Management, PHO, Security team
	Child welfare and protection	- The hospital will develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project including on SEA. - All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behavior - Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014. - Wherever possible, ensure that another adult is present when working in the proximity of children. - Not invite unaccompanied children to worker's home, unless they are at immediate risk of injury or in physical danger - Refrain from physical punishment or discipline of children) - Refrain from hiring children for domestic or other labor, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury. - Comply with all relevant local legislation, including labor laws in relation to child labor specifically provisions of Kenya's Employment Act Cap 226 of 2007 Part VII on protection of children against exploitation	County Children's Officer, Hospital Management
	Increased grievances	- The hospital should create awareness about the GRM mechanism in place to all workers and patients - Provide affected people with avenues for making complains or resolving any dispute that may arise during the course of stay or working at the COVID center - Ensure appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants - Avoid the need to resort to judicial proceeding, unless the complainant decides that the process provided has failed	Hospital Management , County Labour Officer

Table 12: Environmental and Social Management Plan

Aspect	Potential Impact	Proposed Mitigation Measure (s)	Timing	Responsibility	Estimated cost of implementation (KShs)
Construction Phase					
Soil resources	Soil erosion	Re-vegetation through grassing	After construction		100,000.00

Aspect	Potential Impact	Proposed Mitigation Measure (s)	Timing	Responsibility	Estimated cost of implementation (KShs)
Water Quality and Resource use efficiency		Provision of silt traps during construction as necessary	Continuous	Contractor, MoH E&S Expert	
	Soil compaction by equipment and machinery	Restrict construction vehicle movements to defined tracks/paths	Continuous		
	Contamination of local water resources from inappropriate wastewater discharges	Direct wastewater from site activities to a sump from where suspended solids can be deposited before discharge to local drainage systems	Continuous	Contractor, MoH E&S Expert	90,000.00
	Contamination of water resources from spillages and leakages	Institute spill prevention and response procedures	Continuous	Contractor	60,000
	Increased demand on local water resources	Ensure efficient use of water in construction activities	Monthly		0.00
Construction materials usage	Depletion of natural resources	Ensure efficient use of building materials	Continuous	Contractor	0.00
		Optimize materials through reuse	Continuous		
	Building materials	- Efficient use of building materials - Optimize materials reuse	Monthly	Contractor, MoH E&S Expert	0.00
Air Quality (Dust and Emissions)	Nuisance and adverse health due to dust emission	- Wetting of project site to reduce dust - Put up dust screen/nets around the construction and renovation sites, - Provision of PPE (dust masks) for the workers, - Covering all trucks delivering construction material - Covering of stock piled construction material	Continuous	Contractor, MoH E&S Expert	100,000.00
	Adverse health impacts as a result of emissions of fumes from vehicles,	- Use of low emission machinery that use electricity as source of power or use manual labour; - Periodically Service all the equipment and machinery used during construction phase	Continuous		
Noise and Vibration	Nuisance and adverse health impacts from high noise and vibration levels	- Planned schedules for Construction during day time; - Using silencers in heavy machines, - Use of PPE such as ear muffs - Operation and maintenance of equipment used on site	While at site and during operation of heavy machines	Contractor, MoH E&S Expert	50,000.00
Waste Management	Health and safety hazards and environmental pollution from poor management of wastes	- Provide appropriate solid waste receptacles on site - Sensitize workers on appropriate solid waste management - Engagement of a NEMA licensed contractor to collect and dispose the waste	Continuous	Contractor, MoH E&S Expert	50,000.00
Social Concerns during construction and operational phases	Insecurity / public safety	Having guards dedicated to the project sites and fencing off the project sites	Continuous	MoH; Contractor	30,000.00
	Exclusion (ethnicity, gender,	Public awareness of the project requirements,	Continuous	MoH E&S Expert, Contractor	30,000.00

	age, location and disability	- Stakeholder engagement and collective reasoning, - Implementation of the requirements of the LMP, and the GBV Action Plan.			
	Gender based Violence/Sexual Exploitation and Abuse	- The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. - The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. - The contractor should communicate to the workers that there should be no or minimal interaction with the patients.	Continuous	MoH E&S Expert, Contractor	30,000.00
	Lack of access to grievance redress mechanism	A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.	Continuous	MoH E&S Expert; Contractor	30,000.00
	Labour influx	effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse	Continuous	MoH E&S Expert, Contractor,	30,000.00
	Child labour	- Ensure no child of below 18 years is seen on site - Ensure contractor sign a CoC for child protection	Continuous	MoH E&S Expert Contractor	30,000.00
	Public health and safety hazards which may be potential risk to contract communicable diseases and infectious diseases like COVID-19 at the site	- Treat affected local and migrant workers to control the spread of disease vectors (through contaminated water and between people); - Provision of adequate and accessible sanitation facilities in good condition with adequate water supply; - Create awareness to workers on proper sanitation and personal hygiene to promote proper health; and - To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate. - Put in place all infectious diseases including COVID-19 prevention and containment measures. - Publish health and safety information including site rules at the site - Ensure observance of public and community health and safety.	Continuous	MoH E&S Expert, , Contractor	

	age, location and disability	- Stakeholder engagement and collective reasoning, - Implementation of the requirements of the LMP, and the GBV Action Plan.			
	Gender based Violence/Sexual Exploitation and Abuse	- The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. - The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. - The contractor should communicate to the workers that there should be no or minimal interaction with the patients.	Continuous	MoH E&S Expert, Contractor	30,000.00
	Lack of access to grievance redress mechanism	A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.	Continuous	MoH E&S Expert; Contractor	30,000.00
	Labour influx	effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse	Continuous	MoH E&S Expert, Contractor,	30,000.00
	Child labour	- Ensure no child of below 18 years is seen on site - Ensure contractor sign a CoC for child protection	Continuous	MoH E&S Expert Contractor	30,000.00
General Health and Safety	Accidents, incidents causing harm or sickness due to existence of health and safety hazards on site	- Provision and use of proper personal protective equipment - Provision of first aid kits - Undertake first aid training and awareness creation on OHS - OHS policy strategically displayed - Erecting hazards warning signs on site	Continuous	MoH E&S Expert, Contractor	250,000 once
Operational Phase					
Waste Management	Healthcare Waste generated from the health facility	- Ensure appropriate and adequate segregation of HCW waste at source - Ensure appropriate on-site transportation of HCW to Waste treatment area, - Ensure proper records of waste received from the immediate health facility and other health facilities, - Appropriate healthcare waste storage area free from vermins - Ensure efficient treatment of healthcare waste - Appropriate transportation of microwaved waste to disposal site.	Continuous	Health facility manager, Biomedical engineer	200,000

	age, location and disability	- Stakeholder engagement and collective reasoning, - Implementation of the requirements of the LMP, and the GBV Action Plan.			
	Gender based Violence/Sexual Exploitation and Abuse	- The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. - The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. - The contractor should communicate to the workers that there should be no or minimal interaction with the patients.	Continuous	MoH E&S Expert, Contractor	30,000.00
	Lack of access to grievance redress mechanism	A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.	Continuous	MoH E&S Expert; Contractor	30,000.00
	Labour influx	effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse	Continuous	MoH E&S Expert, Contractor,	30,000.00
	Child labour	- Ensure no child of below 18 years is seen on site - Ensure contractor sign a CoC for child protection	Continuous	MoH E&S Expert Contractor	30,000.00
General Health and Safety	Occupational and public health hazards	- Ensure provision of and appropriate use personal protective equipment - Erecting warning signs on site - Regular medical check-up for healthcare waste handlers and vaccination such as against Hepatitis A, B and tetanus and COVID-19, - Provision of appropriate sanitary facilities, - Provision of first aid kits - OHS policy strategically displayed - Ensure observance of public and community health and safety - Ensure thorough general cleanliness and disinfection of the facility among other appropriate housekeeping and ventilation practices.	Continuous	Proponent, biomedical engineer -	1,500,000
	Fire preparedness Operation of health facilities	- Conduct regular drills on fire emergency response and evacuation. - Conduct regular inspection of fire-fighting equipment. - Install an adequate number of fire-fighting equipment and systems including portable fire extinguishers and hose reels	Continuous	, biomedical -engineer	

	age, location and disability	- Stakeholder engagement and collective reasoning, - Implementation of the requirements of the LMP, and the GBV Action Plan.			
	Gender based Violence/Sexual Exploitation and Abuse	- The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. - The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. - The contractor should communicate to the workers that there should be no or minimal interaction with the patients.	Continuous	MoH E&S Expert, Contractor	30,000.00
	Lack of access to grievance redress mechanism	A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.	Continuous	MoH E&S Expert; Contractor	30,000.00
	Labour influx	effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse	Continuous	MoH E&S Expert, Contractor,	30,000.00
	Child labour	- Ensure no child of below 18 years is seen on site - Ensure contractor sign a CoC for child protection	Continuous	MoH E&S Expert Contractor	30,000.00
	Total cost				2,780,000

Table 13: Environmental and Social Monitoring Plan

Aspect	Potential Impact	Mitigation Measure (s)	Monitoring Indicators	Frequency of Monitoring	Responsibility	Estimated cost of implementation (KShs)
		Construction Phase				
Soil resources	Soil erosion	Re-vegetation through grassing	Extent of vegetation cover; % of bare ground around the project site	After construction	Contractor, MoH E&S Expert	50,000
		Provision of silt traps during construction as necessary	Presence of silt traps	Continuous		0.00
	Soil compaction by equipment and machinery	Restrict construction vehicle movements to defined tracks/paths	Percentage of actual compacted area vis-à-vis the proportion that would inevitably be compacted even when caution is applied	Continuous		0.00

Aspect	Potential Impact	Mitigation Measure (s)	Monitoring Indicators	Frequency of Monitoring	Responsibility	Estimated cost of implementation (KShs)
Water Quality and Resource use efficiency	Contamination of local water resources from inappropriate wastewater discharges	Direct wastewater from site activities to a sump from where suspended solids can be deposited before discharge to local drainage systems	- Existence and operation of a wastewater sump at the site - Size and type of drainage system	Continuous	Contractor, MoH E&S Expert	50,000.00
	Contamination of water resources from spillages and leakages	Institute spill prevention and response procedures	Established procedures for identified hazardous materials	Continuous	Contractor	0,000
	Increased demand on local water resources	Ensure efficient use of water in construction activities	- Records of amount of water used monthly. - Water saving measures instituted at the site	Monthly		0.00
Construction materials usage	Depletion of natural resources	Ensure efficient use of building materials	- Records of building materials tracking - Financial savings in subsequent bills	Continuous	Contractor	0.00
		Optimize materials through reuse		Continuous		
Air Quality (Dust and Emissions)	Nuisance and adverse health due to dust emission	- Wetting of project site to reduce dust - Put up dust screen/nets around the construction and renovation sites, - Provision of PPE (dust masks) for the workers, - Covering all trucks delivering construction material - Covering of stock piled construction material	- Air quality measurement to determine amounts of dust at site - Visual observation - Complaints received from staff	Continuous	Contractor, MoH E&S Expert	100,000.00
	Adverse health impacts as a result of emissions of fumes from vehicles,	- Use of low emission machinery that use electricity as source of power or use manual labour; - Periodically Service all the equipment and machinery used during construction phase	- Type of machinery being used, - Visual observation of emissions - Air quality measurements to determine air borne particulate matter. - Records of serviced construction vehicles	Continuous		
Noise and Vibration	Nuisance and adverse health impacts from high noise and vibration levels	- Planned schedules for Construction during day time; - Using silencers in heavy machines,	- schedules of activities - Noise and vibrations measurement in Decibels	While at site and during operation of heavy	Contractor, MoH E&S Expert	30,000.00

		• Use of PPE such as ear muffs • Operation and maintenance of equipment used on site	• Complains from workers and staff • Records of machine operation and maintenance	machines		
Waste Management	Health and safety hazards and environmental pollution from poor management of wastes	• Provide appropriate solid waste receptacles on site • Sensitize workers on appropriate solid waste management • Engagement of a NEMA licensed contractor to collect and dispose the waste	• Availability of waste receptacles • Waste streams and volumes generated on site including hazardous waste - used oil, waste paints • Waste tracking documents	Continuous	Contractor, MoH E&S Expert	30,000.00
Social Concerns during construction and operational phases	Insecurity / public safety	• Having guards dedicated to the project sites and fencing off the project sites	Presence of a security Personnel. Fence around the project site;	Continuous	The proponent /MoH, PWE	30,000.00
	Exclusion (ethnicity, gender, age, location and disability	• Public awareness of the project requirements, • Stakeholder engagement and collective reasoning, • Implementation of the requirements of the LMP, and the GBV Action Plan.	Minutes of public awareness/stakeholder engagements carried out	Continuous	MoH E&S Expert,	30,000.00
	Gender based Violence/Sexual Exploitation and Abuse	• The contractor should develop a code of conduct which should encompass clear warning to workers on any kind of sexual exploitation and abuse. • The contractor should provide a mechanism where workers are free to report any sexual advances and abuse to the senior management without fear of intimidation. • The contractor should communicate to the workers that there should be no or minimal interaction with the patients.	Signed code of conduct Code of conduct for workers	Continuous	MoH E&S Expert,	30,000.00
	Lack of access to grievance redress mechanism	• A verbal or written complaint from a complainant will be received by the site supervising engineer/site agent and recorded in a complaints log that is kept on site. The log will indicate grievances, date lodged, action taken to address complaint or reasons the grievance was not acted on; information provided to complainant and date the grievance was closed.	• Grievance logs • No of resolved cases • No of escalated cases	Continuous	MoH E&S Expert,	30,000.00

		• Use of PPE such as ear muffs • Operation and maintenance of equipment used on site	• Complains from workers and staff • Records of machine operation and maintenance	machines		
	Labour influx	effective community engagement and strong grievance mechanisms on matters related to labour, including sexual exploitation and abuse	• Copies of employment contract segregated by gender	Continuous	MoH E&S Expert, Contractor,	30,000.00
	Child labour	• Ensure no child of below 18 years is seen on site • Ensure contractor sign a CoC for child protection	• The work force registry with details of age	Continuous	MoH E&S Expert, , Contractor	30,000.00
General Health and Safety during construction &	Public health and safety hazards which may be potential risk to contract communicable diseases	• Treat affected local and migrant workers to control the spread of disease vectors (through contaminated water and between people);	• Visual inspection and observation of functionality of sanitary facilities	Continuous	MoH E&S Expert, , Contractor	50,000

operation	and infectious diseases like COVID-19 at the site	• Provision of adequate and accessible sanitation facilities in good condition with adequate water supply; • Create awareness to workers on proper sanitation and personal hygiene to promote proper health; and • To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate. • Put in place all infectious diseases including COVID-19 prevention and containment measures. • Publish health and safety information including site rules at the site • Ensure observance of public and community health and safety • Ensure thorough general cleanliness and disinfection of the facility among other appropriate housekeeping and ventilation practices.				
	Accidents, incidents causing harm or sickness due to existence of health and safety hazards on site	• Provision and use of proper personal protective equipment • Provision of first aid kits • Undertake first aid training and awareness creation on OHS • OHS policy strategically displayed • Erecting hazards warning signs on site	• Display of OHS policy First aid training records, list of first aiders and those of health and safety committee members. • Well stocked first aid kit	Continuous	MoH E&S Expert, Contractor	50,000 once
	Fire preparedness Operation of health facilities	• Conduct regular drills on fire emergency response and evacuation. • Conduct regular inspection of fire-fighting equipment. • Install a n adequate number of fire-fighting equipment and systems including portable fire extinguishers and hose reels	• Presence of firefighting equipment • Statistical records and safety reports Serviced fire extinguishers. •	Continuous	biomedical - engineer	

operation	and infectious diseases like COVID-19 at the site	• Provision of adequate and accessible sanitation facilities in good condition with adequate water supply; • Create awareness to workers on proper sanitation and personal hygiene to promote proper health; and • To mitigate risk from food related contamination amongst construction workers, food supplies will be from the vendors with public health certificate. • Put in place all infectious diseases including COVID-19 prevention and containment measures. • Publish health and safety information including site rules at the site • Ensure observance of public and community health and safety • Ensure thorough general cleanliness and disinfection of the facility among other appropriate housekeeping and ventilation practices.				
		Operational Phase				
Efficient use of resources	Surface run-off and waste water management	• Embankment, re-vegetation, proper drainage systems • Efficient use of water resources • Spill prevention procedures and response plan	• Extent of vegetation cover; % of bare ground • Amount of water used monthly; water saving measures instituted	Continuous	Hospital management	50,000.00

			- at the site • Presence of silt traps			
	Pollution of surface and ground water	• Installation of pre-treatment chambers before discharge to hospital septic system	Established procedures for identified hazardous materials	Construction	Hospital management, hospital PHO	
	Increased use of Energy and indoor air pollution	• Efficient energy use and use of clean energy as back up source of power • Install a meter to monitor power consumption • Switch of lights when not in use	• Power usage bills monthly; energy saving measures instituted, presence of a meter	Continuous	Hospital management, hospital PHO	
Waste Management	Healthcare Waste generated from the health facility	• Ensure appropriate and adequate segregation of HCW waste at source • Ensure appropriate on-site transportation of HCW to Waste treatment area, • Ensure proper records of waste received from the immediate health facility and other health facilities, • Appropriate healthcare waste storage area free from vermin • Ensure efficient treatment of healthcare waste • Appropriate transportation of microwaved waste to disposal site.	• Availability of waste receptacles • Waste streams and volumes generated on site including hazardous waste - used oil, waste paints • Waste tracking documents	Continuous	Health facility manager, , Biomedical engineer	200,000
	Total cost					790,000

9. SUMMARY, CONCLUSION AND RECOMMENDATION

9.1 Summary

In accordance with the Environmental Management and Coordination Act (EMCA) Cap 387 (Amended 2015) and the Environmental (Impact Assessment and Audit) Regulations, 2003, an Environmental and Social Impact Assessment (ESIA) was conducted for the proposed construction of a Level 6 Hospital. The assessment evaluated potential environmental and social impacts associated with the project during the construction, operation, and decommissioning phases.

The findings indicate that the anticipated impacts can be effectively mitigated through the implementation of the proposed Environmental and Social Management Plan (ESMP) outlined in Table 12, alongside the monitoring framework provided in Table 13. Based on the analysis of both positive and negative impacts, and assuming the project is designed, constructed, operated, and monitored in full compliance with applicable environmental, social, health, and safety (ESHS) standards, the project is not expected to result in significant adverse impacts that would preclude its implementation.

The proposed Level 6 Hospital is expected to generate substantial positive impacts, including creation of employment opportunities during both construction and operation phases, expansion and improvement of healthcare infrastructure, stimulation of local economic activities through demand for construction materials and services, and enhanced capacity building for healthcare personnel. Additionally, the facility will significantly improve access to specialized and referral healthcare services, thereby contributing to improved public health outcomes.

However, several potential negative impacts may arise during the construction phase. These include disturbance of the physical environment such as vegetation clearance and alteration of landforms, increased noise and vibration, air pollution from dust emissions, increased solid and liquid waste generation, accidental spillages of hazardous materials, and increased demand for construction materials. Social risks may include occupational health and safety (OHS) hazards, spread of communicable diseases (including COVID-19), increased risk of HIV/AIDS and other sexually transmitted infections, labour influx-related challenges, potential human rights concerns, gender-based inequalities, security risks, sexual exploitation and abuse (SEA), and community grievances.

During the operational phase, potential impacts include risks associated with improper healthcare waste management (HCWM), fire hazards, occupational safety and health risks for healthcare workers and waste handlers, increased water and energy consumption, generation of liquid waste, and possible air pollution from inadequately managed medical waste.

To address these risks, the ESIA proposes a range of appropriate and cost-effective mitigation measures. These include controlled vegetation clearance and re-vegetation of disturbed areas, installation of proper storm water drainage systems, implementation of rainwater harvesting systems, dust suppression through regular water sprinkling, and strict adherence to occupational health and safety standards. Healthcare waste will be managed in compliance with national regulations through the use of designated containers for segregation, storage, transportation, and disposal, including engagement of NEMA-licensed waste handlers for hazardous waste.

All mitigation measures are comprehensively detailed in the ESMP (Table 12), with corresponding monitoring mechanisms outlined in Table 13 to ensure compliance and effectiveness throughout the project lifecycle.

Overall, the construction and operation of the proposed Level 6 Hospital are environmentally and socially viable, provided that the recommended mitigation and monitoring measures are fully implemented.

9.2 Conclusion

Based on the data collected, analyzed, and collated during the ESIA process for the proposed construction of the Level 6 Hospital, it is the considered opinion of the experts that the project is environmentally and socially viable, subject to strict adherence to the recommended mitigation and monitoring measures.

- i. The proposed construction of the Level 6 Hospital does not pose any significant or irreversible environmental concerns. The anticipated impacts are largely moderate and typical of large-scale infrastructure and healthcare development projects, and can be effectively managed through the implementation of appropriate mitigation measures.
- ii. The positive impacts of the project—such as improved access to specialized healthcare services, enhanced referral capacity, job creation, and strengthening of healthcare infrastructure—significantly outweigh the potential negative impacts. These adverse impacts can be adequately minimized and controlled through the prescribed Environmental and Social Management Plan (ESMP) and monitoring framework.
- iii. The project is critically needed to address existing gaps in healthcare service delivery and medical waste management. The establishment of a Level 6 Hospital will provide modern, efficient, and environmentally sound systems for handling healthcare waste, thereby eliminating unsafe practices such as open burning and improving overall public health and environmental quality.
- iv. The Ministry of Health (MoH) has already established appropriate measures for the management of medical waste across many health facilities, including referral hospitals. For the proposed Level 6 Hospital, there will be a need for continuous and routine monitoring of healthcare waste collection, segregation, transportation, and disposal processes, as well as regular validation of the functionality and efficiency of waste treatment and disposal systems.
- v. In light of the above considerations, the proposed project should be approved for implementation. However, its execution must strictly comply with the ESMP, relevant national legislation, and internationally recognized environmental and social safeguards to ensure sustainable development and protection of both the environment and surrounding communities.

9.3 Recommendations

The following recommendations are proposed to guide the successful and sustainable implementation of the construction and operation of the Level 6 Hospital:

- a. Although the anticipated negative environmental and social impacts associated with the construction of the Level 6 Hospital are moderate, localized, and manageable, it is essential that the Environmental and Social Management Plan (ESMP) be fully operationalized. This will ensure that all mitigation measures are effectively implemented throughout the project lifecycle, thereby promoting environmental sustainability and safeguarding community well-being.
- b. The institutional framework responsible for the implementation and oversight of the project should be adequately strengthened and operationalized. Relevant authorities and stakeholders must actively execute their mandates to ensure continuous monitoring, compliance, and enforcement of environmental, social, health, and safety (ESHS) requirements during both construction and operational phases of the Level 6 Hospital.
- c. The project should allocate sufficient resources towards continuous capacity building for hospital staff, particularly those involved in healthcare waste management and facility operations. Emphasis should be placed on training in occupational safety and health, emergency preparedness and response, and best practices in medical waste treatment and management systems to ensure safe and efficient functioning of the Level 6 Hospital.

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APPENDIX 1: NEMA CORRESPONDENCE

This appendix reproduces the statutory correspondence between the proponent and the National Environment Management Authority for the proposed Bungoma Level VI Teaching and Referral Hospital: the public participation notice issued under Regulation 17 of the Environmental (Impact Assessment and Audit) Regulations 2003; the Authority's approval of the Terms of Reference for the assessment; and the Environmental Impact Assessment Licence issued for the project.

A. Public Participation Notice

Notice issued to stakeholders and members of the public in Sichei Village and environs, Mukuyuni Ward, Kabuchai Sub-County, convening the public consultative meeting under Regulation 17.

**REPUBLIC OF KENYA
MINISTRY OF HEALTH
STATE DEPARTMENT FOR MEDICAL SERVICES**

P. O. Box 30016 – 00100, Nairobi, Kenya

Tuesday, 21st April, 2026

To: ALL STAKEHOLDERS / MEMBERS OF THE PUBLIC IN SICHEI VILLAGE AND ENVIRONS, MUKUYUNI WARD, KABUCHAI SUB-COUNTY, BUNGOMA COUNTY.

RE: INVITATION TO ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PUBLIC PARTICIPATION MEETING FOR THE PROPOSED BUNGOMA LEVEL (VI) TEACHING AND REFERRAL HOSPITAL ON PLOT L.R. NO. BOKOLI/CHWELE 2458, SICHEI VILLAGE, MUKUYUNI WARD, KABUCHAI SUB-COUNTY, BUNGOMA COUNTY.

THE STATE DEPARTMENT FOR MEDICAL SERVICES is proposing to construct a Level Six Teaching and Referral Hospital on the above stated land parcel, adjoining the Sichei Kenya Medical Training College (KMTC).

Pursuant to Regulation 17 of the Environmental Management and Coordination (Impact Assessment and Audit) Regulations, 2003, we, the proponent of the subject project, invite the public to a public consultative meeting to be held on Tuesday, 28th April, 2026. The venue of the meeting shall be the proposed project site, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County, at 10.00 a.m.

Members of the public, Project Affected Persons, local administration, community representatives, women, youth, the elderly, persons with disabilities, religious leaders and other interested parties are invited to attend and to submit their views, comments and concerns. Written submissions may also be delivered to the contact given below.

For any enquiries kindly contact the following:

Edgar Eredi — 0724 904217

Email: muyesuedgar@gmail.com

Yours faithfully,

STATE DEPARTMENT FOR MEDICAL SERVICES

Ministry of Health

B. NEMA Terms of Reference Approval

Reference No. NEMA/ENVIS/EIA/TOR/00554, Approval No. NEMA/ENVIS/EIA/TOR/Approval_0222, dated 6 May 2026, signed for the Director General, with conditions including inclusive stakeholder engagement and public participation with Project Affected Persons under Regulation 17.



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Terms of Reference (TOR) Approval

License No.: NEMA/ENVIS/EIA/TOR/Approval_0222

Application Reference No: NEMA/ENVIS/EIA/TOR/00554

Reference No: NEMA/ENVIS/EIA/TOR/00554 Date of Approval: 6th May 2026

The Director

STATE DEPARTMENT FOR MEDICAL SERVICES

P.O. BOX 30016, 00100, Nairobi General Post Office

Email: healthsdms@gmail.com

RE: TERMS OF REFERENCE FOR ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR Construction of Bungoma County level 6 Hospital Teaching and Referral

The National Environment Management Authority (NEMA) acknowledges receipt of your Terms of Reference (ToR) for the above subject.

Pursuant to the Environmental Management and Coordination Act, 1999, the Environmental (Impact Assessment and Audit) Regulations 2003 and Legal notice 31 & 32 of 2019, your terms of reference for the Environmental Impact Assessment (EIA) for the

Proposed construction and operation of a Level VI (SIX) Teaching and Referral Hospital comprising basement, ground and 6No. upper floors hospital facilities, associated civil and engineering works, storm water drainage systems, landscaping, electrical installations, parking, utility infrastructure and ancillary support facilities to enhance healthcare service delivery on plot L.R. No. Bokoli/Chwele/2458 in Bungoma County.

, has been **approved** with the attached conditions.

You shall submit a duly signed ESIA study report prepared by a team of experts to the Authority, accompanied by the above specialized assessment reports upon payment of the applicable EIA processing and monitoring fees, being 0.1% of the total project cost and a soft copy of the summarized ESMP in **WORD** format for preparation of public notice.

Joseph Makau

For DIRECTOR GENERAL

National Environment Management Authority

Our Environment, Our Life, Our Responsibility



TERMS AND CONDITIONS

1. You shall undertake an inclusive and detailed stakeholders' engagement and Public Participation with the Project Affected Persons (PAPs) in full compliance with Regulation 17 of the EIA/EA Regulations 2003, with evidence of analysis and incorporation of public comments, concerns and issues in the final ESIA study Report. To ensure an inclusive public participation and engagement process, the Proponent shall submit evidence of the same in the form of:
 2. A notice giving the PAPs 7 days' notice of meetings to be held, the notice(s) should include:
 3. Posters posted in strategic public places in the vicinity of the site of the proposed project, informing the affected parties and communities of the proposed project.
 4. A notice published on the proposed project for two successive weeks in a newspaper that has a nationwide circulation.
 5. Announcement made over the radio of the notice in both official and local languages in a radio with nationwide coverage at least once a week for two consecutive weeks.
6. At least 3 meetings held with the PAPs with evidence of the 3 public consultation meetings, each with duly endorsed minutes, attendance list signed and stamped by the area local administrator, as well as photographs, written comments from the participants and duly filled and signed questionnaires, signed memoranda to be annexed to minutes as supporting documents.
7. Provide evidence of engaging a suitably qualified coordinator appointed in consultation with the Authority to receive and record both oral and written comments during public participation meetings.
8. You shall undertake a detailed baseline environmental assessment including Water quality, Soil site geotechnical analysis, site hydrogeological analysis, Ambient air quality, Noise Level measurements and biodiversity assessment of the proposed project site area.
9. You shall identify potential Green House Gas (GHG) emission sources and the projected emission estimates and undertake a Climate Change Risk and Vulnerability Assessment to inform appropriate adaptation and mitigation measures to climate-proof the project in line with provisions of the Climate Change Act, 2016.
10. You shall ensure that the Final ESIA report is signed by all members of the multi-disciplinary team of experts.

C. NEMA Environmental Impact Assessment Licence

Licence No. NEMA/ENVIS/SR/LIC-03356, Application Ref. No. NEMA/ENVIS/SR/00570, issued 8 May 2026 to the Ministry of Health for the proposed Bungoma Level 6 Hospital on Plot L.R No. Bokoli/Chwele 2458, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, subject to the attached conditions.



EIA250526152

nema
Mazingira Yetu | Uhai-Wetu | Wajitu Wetu

**NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT LICENSE**

License No: **NEMA/ENVIS/SR/LIC-03356**

Application Ref No: **NEMA/ENVIS/SR/00570**

This is to certify that the Environmental Impact Assessment Project Report received from
MINISTRY OF HEALTH.

of

P.O BOX 30016-00100, NAIROBI.

submitted to the National Environment Management Authority in accordance with
the Environmental Impact Assessment & Audit Regulations, 2003 regarding the:
Proposed Bungoma Level 6 Hospital.

whose objective is to carry on

Bungoma Level VI Teaching and Referral Hospital (BCTRH), a modern 1,800-bed tertiary healthcare, teaching, research and trauma referral facility comprising a multi-storey hospital complex with two basement levels and six upper clinical floors accommodating accident and emergency units, specialized inpatient and outpatient facilities, operating theatres, intensive care units, maternity and neonatal units, oncology and burns centres, renal dialysis services, advanced diagnostic imaging facilities, medical training infrastructure, funeral home and pathology support facilities, and associated utility infrastructure and amenities.

Located on

Plot L.R No. LR No.: Bokoli/Chwele 2458 in Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County.

has been reviewed and a license is hereby issued for the implementation of the project,
subject to attached conditions.

Issue Date: **08/05/2026**


Signature

(Seal)

**Director-General
The National Environment
Management Authority.**



1. General Conditions

- 1.1 This project is for the developemtn of Bungoma Level VI Teaching and Referral Hospital (BCTRH), a modern 1,800-bed tertiary healthcare, teaching, research and trauma referral facility comprising a multi-storey hospital complex with two basement levels and six upper clinical floors accommodating accident and emergency units, specialized inpatient and outpatient facilities, operating theatres, intensive care units, maternity and neonatal units, oncology and burns centres, renal dialysis services, advanced diagnostic imaging facilities, medical training infrastructure, funeral home and pathology support facilities, and associated utility infrastructure and amenities. on Plot L.R No.: Bokoli/Chwele 2458 Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County.
- 1.2 The license shall be valid for 24 months (time within which the project shall commence from the date hereof.
- 1.3 The Director General shall be notified of any transfer, variation or surrender of this license.
- 1.4 Without prejudice to the other conditions of this license, the proponent shall implement and maintain an environmental management system, organizational structure and allocate resources that are sufficient to achieve compliance with the requirements and conditions of this license.
- 1.5 The Authority shall take appropriate action against the proponent in the event of breach of any of the conditions stated herein or any contravention to the Environmental Management and Coordination Act, 1999 and regulations therein.
- 1.6 This license shall not be taken as statutory defence against charges of environmental degradation or pollution in respect of any manner of degradation/pollution not specified herein.
- 1.7 The proponent shall ensure that records on conditions of licenses/approval and project monitoring and evaluation shall be kept on the project site for inspection by NEMA's Environmental Inspectors.
- 1.8 The proponent shall submit an Environmental Audit report in the first year of occupation/operations/commissioning to confirm the efficacy and adequacy of the Environmental Management Plan.
- 1.9 The proponent shall comply with NEMA's improvement orders throughout the project cycle.

2. Construction Conditions

- 2.1 The proponent shall obtain all the requisite approval from the County Government of Bungoma, Ministry of Health and all other relevant authorities prior to commencement of construction works for the Hospital.
- 2.2 The proponent shall ensure that the construction is done as per the approved drawings in adherence to the building code, 2024 and the provisions of the National Construction Act, 2011.
- 2.3 The proponent shall ensure that construction, operation and disposal of ash from the incinerator is done in adherence to the provisions of the Environmental Management and Coordination (Waste Management) Regulations of 2024.
- 2.4 The proponent shall submit design drawings of the proposed effluent treatment plant, water and sewerage reticulation systems to the area Water and Sewerage Company and the County Public Health Officer for approval prior to commencement of works.
- 2.5 The proponent shall ensure that the furnace of the proposed incinerator is fitted with a chimney of a minimum height of 10m above ground level and clear the highest point of the building by not less than 3 metres for all roofs; taking into consideration the topography and height of adjacent buildings within 50 metres. The chimney should preferably be visible to the operator from the material feeding area.



- 2.6 The proponent shall submit designs drawings of the proposed Waste Water Treatment Plant to the Area Water Resources Authority and the County Public Health Officer for approval prior to commencement of works.
- 2.7 The proponent shall develop and implement a traffic management plan approved by the County Engineer.
- 2.8 The proponent shall ensure that all excavated materials and debris are collected, reused and where need be, disposed as per the Environmental Management Coordination (Waste Management) Regulation 2024.
- 2.9 The proponent shall ensure that the design of the proposed incinerator meets the specifications for Class 2A incinerator, as stipulated in the Third Schedule of the Environmental Management and Coordination (Waste Management) Regulations of 2024.
- 2.10 The proponent shall establish and maintain a comprehensive labour management plan during the entire project cycle. This plan should be designed to protect the safety and human rights of all workers at all times. It must incorporate occupational health and safety strategy, workman compensation insurance policies, a system for addressing workers' grievances, measures for preventing gender-based violence, as well as a comprehensive plan for preventing sexual harassment, exploitation and abuse.
- 2.11 The proponent shall put up a project signboard as per the Ministry of Transport and Infrastructure standards indicating the NEMA license number among other information.
- 2.12 The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution Control) Regulations, 2009.
- 2.13 The proponent shall ensure strict adherence to the Occupational Safety and Health Act, 2007
- 2.14 The proponent shall ensure that workers are provided with adequate Personal Protection Equipment (PPE), sanitary facilities as well as adequate training.
- 2.15 The proponent/developer shall ensure that construction activities are undertaken during the day (and not at night) - between 0800 hrs and 1800 hrs; and on Saturdays between 0800 hrs to 1300 hrs. No work shall be undertaken on Sundays; and that transportation of construction materials to and from site are undertaken during weekdays and Saturdays only during the hours specified herein.
- 2.16 The proponent shall ensure that the development adheres to zoning specifications issued for development of such a project within the jurisdiction of County Government of Bungoma with emphasis on approved land use for the area.
- 2.17 The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Air Quality) Regulations, 2014.
- 2.18 The proponent shall ensure strict adherence to the Environmental Management Plan developed throughout the project cycle.
3. **Operational Conditions**
 - 3.1 The proponent shall obtain all the requisite approvals from the Ministry of Health and all other Relevant Authorities before commencement of operations of the hospital.
 - 3.2 The proponent shall obtain a license to own/ operate a waste disposal facility from NEMA before commencement of incineration activities in accordance with the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2024.

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- 3.3 The proponent shall obtain an effluent discharge license from NEMA for the proposed effluent treatment plant within the first year of operation.
- 3.4 The proponent shall ensure that continuous stack emission control equipment is installed at the incinerator for periodic measurements of stack emission to ensure air emissions are maintained within permissible levels.
- 3.5 The proponent shall ensure that a well-designed ash pit is constructed for storage of all residual ash from incineration process.
- 3.6 The proponent shall ensure that the proposed incinerator is fitted with a functional temperature gauge to regulate temperature during the combustion process.
- 3.7 The proponent shall provide a suitable waste storage facility with a solid floor and record quantities, type and origin of materials incinerated per day.
- 3.8 The proponent shall ensure proper material mixing and allow for suitable start up and operational temperatures that will ensure that the capacity of the smoke does not exceed 20% viewed from 50m with the naked eyes.
- 3.9 The proponent shall ensure that the residual waste from the incinerator is appropriately reused or disposed of at a site approved by NEMA and the County Government.
- 3.10 The proponent shall obtain an authorization to drill any borehole from Water Resources Authority and a license from NEMA before drilling and abstracting water.
- 3.11 The proponent shall obtain Effluent Discharge License (EDL) from NEMA within the first year of operation.
- 3.12 The proponent shall ensure that the water heating systems installed comply with the provisions of the Energy (Solar Water Heating) Regulations, 2012.
- 3.13 The proponent shall ensure appropriate biomedical waste management through labelling, lining treatment and disposal.
- 3.14 The proponent shall not operate a morgue within the hospitals in case of death in the hospital only a designated temporary body holding areas shall be used before transferring the bodies to registered mortuary.
- 3.15 The proponent shall ensure that all the biomedical waste is incinerated by a NEMA licensed incinerator.
- 3.16 The proponent shall ensure that all waste water is disposed as per the standards set out in the Environmental Management and Coordination (Water Quality) Regulations, 2024.
- 3.17 The proponent shall ensure that rain water harvesting facilities are provided to supplement surface and ground water.
- 3.18 The proponent shall ensure that all solid waste is handled in accordance with the Environmental Management and Coordination (Waste Management) Regulations, 2024.
- 3.19 The proponent shall ensure compliance to the Environmental Management and Coordination (Air Quality) Regulations, 2024.

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- 3.20 The proponent shall implement a greenhouse gas (GHG) emission monitoring system to track reductions or removals over time and report the findings in the environmental audits submitted to the Authority.
- 3.21 The proponent shall obtain emissions license for each Standby Generator of 100kVA and above in line with requirements of Environment Management and Coordination (Air Quality) Regulations 2024.
- 3.22 The proponent shall ensure that all workers are well protected and trained as per the Occupational Safety and Health Act, 2007.
- 3.23 The proponent shall provide adequate parking space for vehicles and adequate access routes for emergency situations.
- 3.24 The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution Control) Regulations, 2009.
- 3.25 The proponent shall comply with the relevant principal laws, by-laws and guidelines issued for development of such a project within the jurisdiction of County Government of Bungoma, Kenya Urban Roads Authority, National Construction Authority, Ministry of Lands, Housing and Urban Development, Directorate of Health and Safety Services, Ministry of Health, Water Resources Authority and other relevant Authorities.
- 3.26 The proponent shall ensure that environmental protection facilities or measures to prevent pollution and ecological deterioration such as water and energy saving fixtures, integrated solid waste management system, landscaping, soil erosion controls, functional drainage systems, emergency response plan, utility relocation plan, traffic management plan, Air pollution control, crowd control mechanisms, waste water management plans are designed, constructed and employed simultaneously with the proposed project.

4. Notification Conditions

- 4.1 The proponent shall seek written approval from the Authority for any operational changes under this license.
- 4.2 The proponent shall ensure that the Authority is notified of any malfunction of any system within 12 hours on the NEMA hotline No. **0741101100/0736101100** and mitigation measures put in place.
- 4.3 The proponent shall keep records of all pollution incidences and notify the Authority within 24 hours.
- 4.4 The proponent shall notify the Authority in writing of its intent to decommission the facility **three (3) months** in advance.

5. Decommissioning Conditions

- 5.1 The proponent shall ensure that a decommissioning plan is submitted to the Authority for approval at least three (3) months prior to decommissioning.
- 5.2 The proponent shall ensure that all pollutants and polluted material is contained and adequate mitigation measures provided during the phase.

The above conditions will ensure environmentally sustainable development and must be complied with.



APPENDIX 2: SITE PHOTOGRAPHS

The photographs below record the condition of the proposed site at Plot L.R No. Bokoli/Chwele 2458, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County, and the conduct of the public participation meeting held on 15 April 2026.



Plate 1: General view of the proposed site – open grassland with the eucalyptus windrow and the Sichei Kenya Medical Training College buildings beyond.



Plate 2: The proposed site looking across the parcel, showing the gently sloping open grassland and the existing footpath crossing the site.



Plate 3: Site walkover during the assessment, with small-scale maize cultivation on the adjoining land to the right.



Plate 4: The assessment team traversing the parcel, with a participant indicating the site boundary.



Plate 5: Sichei Dispensary adjoining the site, with the public participation meeting assembling outside.



Plate 6: Open grassland on the proposed site with livestock grazing, the tree line and small-scale maize cultivation on adjoining land beyond.



Plate 7: Entrance and verandah of the Kenya Medical Training College, Sichei Campus, which donated the land for the proposed hospital.



Plate 8: The Kenya Medical Training College, Sichei Campus building adjoining the site – the institution that donated the land for the proposed hospital.

APPENDIX 3: CONSULTANT CVS AND REGISTRATION DETAILS

The ESIA team members, their qualifications, professional registration and role on this assignment are set out below. Each entry is the summary curriculum vitae for the named expert. Signed and dated full curricula vitae, together with copies of NEMA registration certificates and practising licences, are bound immediately following this table.

Name	Registration	Qualification	Role on this assignment	Affiliation
Edgar Eredi Muyesu	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0559 (App. Ref. NEMA/ENVIS/ELA/025 65); EIA/EA Lead Expert Reg. No. 1921. Issued 22 January 2026, valid to 31 December 2026. Licence endorsed "For South Rift Level VI & Bungoma Level VI Hospitals ESIA & Feasibility", 5 June 2026	BSc Environmental Science (Egerton University, 2002-2006); MSc Occupational Safety and Health (JKUAT, ongoing); ISO 9001/14001/45001 Lead Auditor; Member, Environment Institute of Kenya	ESIA Lead Expert – overall responsibility for the assessment, author of the report and signatory to the certification	Ecotecture Limited (Managing Consultant, Mikayi Systems and Environment Limited)
Edgah M. Ambaza	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0759 (App. Ref. NEMA/ENVIS/ELA/053 32). Issued 27 January 2026, valid to 31 December 2026	BSc Natural Resources Management, Second Class Honours Upper Division (Egerton University, 1998-2003); IRCA-approved Lead Auditor/Trainer ISO 9001, ISO 14001, ISO 50001, OHSAS 18001; CDM/JI Lead Verifier	Lead Auditor – legal and regulatory compliance review; environmental audit methodology	Bureau Veritas (K) Limited, Coast Region
Eddy Okelo Otieno	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0253 (App. Ref. NEMA/ENVIS/ELA/031 18); EIA/EA Lead Expert Reg. No. 8090. Issued 6 January 2026, valid to 31 December 2026. Licence endorsed "To be used for Ministry of Health Level Six (6) Hospitals in Londiani and Bungoma", 6 June 2026	BSc Environmental Science (Kenyatta University, 2013); MSc Project Planning and Management (University of Nairobi, ongoing); NEBOSH International General Certificate (2017); COSHH Manager (2020); Member, Environment Institute of Kenya since 2014	Lead Expert – impact assessment and management planning	Everest Maven Group Limited
Totona Evans Kibon	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0356 (App. Ref. NEMA/ENVIS/ELA/034 21); EIA/EA Lead Expert Reg. No. 8049; DOSHS Reg. No. OSH/ADV III and OSH/FSA 121. Issued 8 January 2026, valid to 31 December 2026. Licence endorsed "For proposed South Rift & Londiani Referral Hospitals by the State Department of Health", 8 June 2026	BSc Environmental Studies and Community Development (Kenyatta University, 2005-2009); MSc Occupational Safety and Health (JKUAT); IFE (UK) Level 2 Certificate in Fire Science, Operations and Safety; Member, Environment Institute of Kenya	Occupational safety and health assessment; fire safety audit; construction-phase risk	CEMEA Limited
Purity Mukami Kariuki	Registered Associate Expert, NEMA; Member, Environment Institute of Kenya; Member, Kenya Wetland Forum; Member, Kenya Forest Working Group	BSc Environmental Studies (Community Development), Second Class Honours Upper Division (Kenyatta University, 2011-2015)	Social assessment, stakeholder engagement and vulnerable-group analysis	Global Environmental and Health Safety (EHS) Consulting

Name	Registration	Qualification	Role on this assignment	Affiliation
Venlensa Atieno Odhiambo	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0745; Registration No. NEMA/ENVIS/RC/0076 (App. Ref. NEMA/ENVIS/ELA/042 90); EIK/2/1502. Issued 26 January 2026, valid to 31 December 2026. Licence endorsed "For proposed Level 6 Hospital"	MSc Environmental Law (University of Nairobi); BSc Environmental Planning and Management (Pwani University, 2017); over 7 years in EIA, environmental audit, OSH audit and ESG compliance	Lead Expert – environmental and social assessment; field data collection and baseline survey; EHS and ESG compliance review	Global EHS Consulting
Sharon Kerubo Ondieki	NEMA Associate Expert – Certificate of Registration No. NEMA/EIA/RC/7207 (App. Ref. NEMA/EIA/ER/15570); Expert Registration No. 13241, issued 12 May 2023. Certificate endorsed "For the proposed Level 6 Hospital by the Ministry of Health"	BSc Environmental Science (Kenyatta University, 2019); NEBOSH IGC; ISO 9001 Implementation and Internal Auditor; Environmental and Social Governance; WSPAK No. 447; EIK/2/6488	Associate Expert – baseline data compilation and environmental monitoring support	Mikayi Systems and Environment Limited
Lawrence Oguda Ogwang	NEMA Associate Expert – Certificate of Registration No. NEMA/EIA/RC/372 (App. Ref. NEMA/EIA/ER/1416); Expert Registration No. 8187, issued 20 June 2014. Certificate endorsed "For proposed Londiani & Sichei Bungoma Level 6 Hospitals"	Diploma, Kenya Wildlife Service Training Institute (2002-2005); Environmental Science; public participation facilitation	Associate Expert – ESIA team member; public participation facilitation and community liaison	Ecotecture Limited
Ezekiel Oluoke	NEMA Lead Expert – Licence No. NEMA/ENVIS/EL/0906 (App. Ref. NEMA/ENVIS/ELA/054 62). Issued 5 February 2026, valid to 31 December 2026. Licence endorsed "For proposed Level 6 Hospitals by the Ministry of Health – Kenya", 6 June 2026	BSc Environmental Health (Mount Kenya University, 2012-2014); Diploma in Environmental Science (Mombasa Polytechnic University College, 2003-2006); QESH Consultant	Environmental impact assessment and audit; health, safety and fire safety training input	Global E.H.S Consulting
Martha Akinyi	Registered Environmental Impact Assessment and Audit Expert, NEMA	BSc Natural Resource Management (University of Eldoret); climate change, environmental and social safeguards, public participation	Environmental and social safeguards support – field assessment, public participation with project-affected persons, and report preparation	Everest Maven Group Limited

Proponent and county representatives associated with the assessment: Dr Hosam Ajuck, Project Representative / Project Manager, Ministry of Health, State Department of Medical Services (Project Proponent); and Micah Nyairo, County Public Health Representative, Bungoma County. Their participation is evidenced in the stakeholder engagement records at Appendix 6.

The curricula vitae, NEMA certificates of registration and practising licences of the study team are reproduced in full below, one sub-section per expert and in the order of the table above. All ten experts' documents are on file. Six of the licences carry a manuscript endorsement by the Authority naming this Ministry of Health Level VI hospital programme, and four of those name the Londiani (South Rift) and Bungoma facilities expressly – the same study team was engaged for both hospitals, and the identical pack is reproduced in each report.

Edgar Eredi Muyesu – ESIA Lead Expert (Licence NEMA/ENVIS/EL/0559; Reg. 1921)

Curriculum vitae, signed 12 June 2026, and NEMA Experts Licence endorsed "For South Rift Level VI & Bungoma Level VI"

CURRICULUM VITAE

Edgar Eredi Muyesu

P.O.Box. 42588-80100 Mombasa

Phone No: 0724-904217

E-mail: muyesuedgar@gmail.com

Languages: English, Kiswahili, (Fluently spoken and written)

Date of Birth: 19th January 1983 **Marital status:** Married **Nationality:** Kenyan

CAREER OBJECTIVE

I am seeking a position that will enable me to pursue day to day consultancy, implementation, training and auditing, in quality, environment and occupational safety & health management systems to positively contribute to organizational sustainability.

WORK AND PROFESSIONAL EXPERIENCE

2015- Present

Contractor Systems Auditor/Trainer

SGS (K) Limited

Conducting Quality, Safety, and Environmental, Occupational Health & Safety Systems Management Systems Audits and Trainings as per the ISO 9001:2015, & 14001:2015 and ISO 45001:2018 standard requirements respectively and related criteria.

May 2013- Current:

Managing Consultant

Mikayi Systems & Environment Limited

1. Conducting Quality, Safety, Environmental, Occupational Health & Safety Systems Management Systems Audits/Trainings/ Implementation programs as per the ISO 9001:2015, & 14001:2015, and ISO 45001:2018 Standard requirements respectively.
2. Conducting Environmental Impact Assessment in line with EMCA and EIA Regulations
3. Conducting Statutory audits –NEMA, Occupational Safety & Health, Fire Safety & Risk Assessment Audits
4. Overseeing the day to day operations

May 2013 – December 2019

Course Instructor- Environmental Impact Assessment

Jomo Kenyatta University of Agriculture & Technology (JKUAT)-Mombasa Campus

Taking learners through EIA courses as guided by EMCA curriculum

Jan 2011 to April 2013

AUDITOR/TRAINER: BUREAU VERITAS (K) LTD

RESPONSIBILITIES:

1. Conducting Quality, Safety, Environmental, Occupational Health & Safety Systems Management Systems Audits/Trainings as per the ISO 9001:2008, & 14001:2004, and ISO 18001: 2007 Standard requirements respectively.
2. Carrying out Environmental, Impact/Audit Assessments as per the Environmental Management and Coordination Act (EMCA 1999) for the company clients as a NEMA registered Expert.

September 2008- December 2010

QUALITY, ENVIRONMENT, OCCUPATIONAL SAFETY HEALTH (QEOSH): GLOBAL E.H.S CONSULTING

RESPONSIBILITIES

Conducting environmental impact assessment and environmental audits in pursuant to the legal requirements of Environmental Management & Coordination Act 1999 (Kenya) for various firms (see attached list of EIAs/Audits conducted)

September 2008 –Nov 2010;

PART TIME TEACHING ASSISTANT: MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

RESPONSIBILITIES

Teaching Environmental Impact Assessment/Audit (EIA/EA), Project Planning & Management, Environmental Planning, Environmental Economics, Environmental law, Occupational Health and Safety, Planning and Management of Natural Resources, Ecology and Environmental Monitoring, Environmental Economics, Law and Community Environmental Health.

Nov 2007-August 2008:

PROJECT OFFICER: NZOIA RIVER BASIN WATER RESOURCE USERS ASSOCIATION-(COMMUNITY DEVELOPMENT TRUST FUND)

RESPONSIBILITIES

- Coordinating day to day operational aspects of the project and staff in the Upper Nzoia basin
- Monitoring and evaluation of project progress jointly with other partners Creating and executing project work plans and revising them as appropriate to meet changing needs/ requirements
- Providing technical support to the implementing community groups

EDUCATIONAL BACKGROUND

2017- Ongoing: Jomo Kenyatta University of Agriculture & Technology

Msc. Occupational Safety & Health

2002-2006: Egerton University

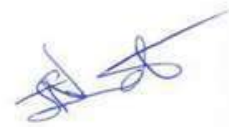
Bsc. Environmental science
Graduated with First Class Honours

Professional Qualifications & Knowledge

- o Management Systems Risk Based Thinking Training
- o Quality Management Systems Lead Auditor Training Course -Lead Auditor, QMS 9001:2008 and later 2015
- o Environmental Management Systems Lead Auditor Training Course Lead Auditor, EMS 14001:2004 and later 2015
- o Occupational Health& Safety Management Systems Lead Auditor Training Course Lead Auditor, EMS 18001:2007 and later ISO 45001:2018
- o National Environment Management Authority (NEMA): Registered and practicing as Environmental Impact Assessment Lead Expert (Reg. No. 1921)
- o Environment Institute of Kenya – Member

REFEREES

Godfrey Wabwire Wafula County Director of Environment P. O. Box 87400-80100 Mobile: +254 734235574 Email: gwafula@yahoo.com	Philip Maliro QHSE Group Head Grain Bulk Industries Limited & MJ Group Mobile: +254 714297058 Email: wphima@gmail.com
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 Date: 12th June, 2026
[Signature of the staff Member]

Full name of staff member: _____ EDGAR EREDI MUYESU _____

Full name of authorized representative: _____ EDGAR EREDI MUYESU _____



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0559

Application Reference No:

NEMA/ENVIS/ELA/02565

M/S Edgar Eredi Muyesu

(individual or firm) of (address) P.O.BOX 42588, 80100, Mombasa GPO

is licensed to practice in the capacity of a **Lead Expert** registration number NEMA/ENVIS/EL/0559 in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: 22nd January 2026

Expiry Date: 31st December 2026

David Ongare

For DIRECTOR GENERAL

National Environment Management Authority

FOR SOUTH RIFT LEVEL VI & BUNGOMA LEVEL VI
HOSPITALS ESIA & FEASIBILITY

5th of JUNE 2026

P.T.O.



ISO 9001 : 2015 Certified

Edgah M. Ambaza – Lead Auditor (Licence NEMA/ENVIS/EL/0759)

Curriculum vitae, signed 8 June 2026, and NEMA Experts Licence – 10 pages

CURRICULLUM VITAE

PERSONAL INFORMATION

NAME: Mr. Edgah M. Ambaza
ADDRESS: P.O. Box 42588-80100,
MOMBASA, KENYA.
0720282167.
TEL:
E-mail: ambaza.edgar@gmail.com
FIELD OF PRACTICE: Quality, Safety, Health and Environment.
NATIONALITY: Kenyan.
Languages: English and Kiswahili
PIN NO. A003342346J.
SEX: Male.
AGE: 35 years.

BACKGROUND

Mr. Edgah M. Ambaza is a dedicated, energetic, proactive and committed Quality, Safety, Health and Environmental Expert with 10 years experience in this field. I am a troubleshooter and able to deal with a range of situations that can arise in my occupation towards quality, safety, health and environmental management. I also have strong communication and diplomatic skills which come in handy with dissatisfied customers and when dealing with staff and clients at all levels.

NOTABLE ACHIEVEMENTS

Managed to increase client and maintain base through prudent service delivery to company clients whilst serving as a trainer and environmental auditor in Universal consultancy Ltd, through advice on the safety and health legislative requirements and timely auditing and submission of environmental audit reports for clients through team work. Managed to improve culture of safety within Mombasa Maize Millers Group towards safety consciousness. Furthermore have assisted organizations achieve certifications in ISO 14001:2004, 18001:2007 & 9001:2008 through awareness, training, documentation and auditing.

EXPERIENCE

CURRENT: December 2008 to Date

AUDITOR/TRAINER BUREAU VERITAS (K) LTD, COAST REGION.

RESPONSIBILITIES:

1. IRCA approved Tutor for EMS EnMS and QMS Lead Auditor Trainings.
2. Conducting Quality, Safety, Health & Environmental, and Energy Management Systems Audits as per the ISO 9001:2008, OHSAS 18001:2007 & ISO 14001:2004, ISO 50001:2011 Standard requirements respectively.
3. Carrying out validation and verification of CDM/JI Projects on behalf of The United Nations Framework Convention on Climate Change.
4. Carrying out Environmental, Impact/Audit Assessments as per the Environmental Management and Coordination Act (EMCA 1999) for the company clients as a NEMA

- registered LEAD EXPERT.
5. Providing consultancy services with special reference to statutory requirements i.e. (EMCA 1999) and OSHA 2007 to help clients comply.
 6. Conducting occupational health and safety trainings/audits as per Occupational Safety and Health Act 2007 (Safety and Health Committee Rules) 2004.
 7. Taking the company clients through the entire documentation, implementation and maintenance of management systems processes of the respective international standards i.e. ISO 9001:2008 & 14001:2004 until they achieve certification.
 8. Formulation of occupational, safety and health policies for the company clients.

Sampled out projects for include:

	EMS	OHSAS	EnMS	QMS	CDM
Coastal Bottlers Ltd	Documentation & Implementation	Documentation & Implementation		Documentation & Implementation	
Primefuels (K) Ltd	Documentation & Implementation				
Primefuels (T) Ltd	Documentation & Implementation				
Pwani University College				Documentation & Implementation	
Bureau Veritas Ltd	Facilitator, IRCA Lead Auditor Open courses		Facilitator, IRCA Lead Auditor pen course	Facilitator, IRCA Lead Auditor Open course	
J.P. Morgan Energy Ventures					Verification of Gyapa Improved Cookie Stoves project, Ghana
J.P. Morgan Energy Ventures					Verification of Ugastove Improved Cookie Stoves, Uganda
Standard Bank Plc					Validation of Refrigeration Plant Efficiency Programme Project, Republic of South Africa
Camco Carbon Africa Ltd					Validation of Small Scale Grid Connected Solar Power Programme Project, Republic of South Africa

2006-2008

GROUP SAFETY HEALTH AND ENVIRONMENT OFFICER

In charge of safety health and environment **Mombasa Maize Millers** and group of companies in Kenya namely:

1. Mombasa Maize Millers Ltd (Mombasa).
2. Mombasa Maize Millers Ltd (Nairobi).
3. Mombasa Maize Millers Ltd (Nakuru).
4. Mombasa Maize Millers Ltd (Kisumu).
5. Mombasa Maize Millers Ltd (Embakasi).
6. Poly Proplene Bags Ltd (Mombasa).
7. Malindi Ginneries Ltd (Malindi).
8. Malindi Salt Works Ltd (Malindi).
9. Patco Industries Ltd (Nairobi).
10. Kitale Industries Ltd (Kitale).
11. Bash Hauliers Ltd

RESPONSIBILITIES.

- ❖ Ensuring site standards are met as set out in the environment, safety and health policies.
- ❖ Carry out specific safety training and participate in new employee and contractor inductions.
- ❖ Coordinating functions of safety, health and environmental committees of all the companies.
- ❖ Liaising with National Environment Management Authority (NEMA and Directorate of Occupational Safety and Health Services (DOHSS) on environment, health and safety issues.
- ❖ Conducting annual Environmental Audits and Environmental Impact Assessments in liaison with approved lead experts.
- ❖ Creating awareness among employees to participate actively in safety, health and environmental management.
- ❖ Analysing accidents and injury statistics for the group.
- ❖ Writing of technical reports on environment, occupational health and safety situations in all the companies on monthly basis.
- ❖ Providing advice to all levels on best practice and legal requirements as per safety, health and environmental standards.
- ❖ Participation in risk assessment and control and maintenance of safety, health and environmental standards.
- ❖ Establishing and maintaining systems for, and participation in, safety, health and environmental inspection and audit.
- ❖ Establishing and maintaining procedures for, and assisting where appropriate, in investigation of accidents, incidents and near misses.
- ❖ Initiating the redrafting of safety rules, systems and procedures for protection of workers against injury and safeguarding property.
- ❖ Carrying out of analysis of trends in safety statistics and recommending action for improvement. Discharging legal information obligations and information requirements from Head Office and external bodies.
- ❖ Participation in site safety communication and review activities. Member of site safety committee.
- ❖ Selection, maintenance and training on use of PPE's.
- ❖ Organizing for annual safety and health audits in liaison with approved safety and health advisors and arranging specialist surveys including dust, noise etc.
- ❖ Authority to stop works being carried out in contravention of agreed standards which puts people at risk.

Sma

2004 TO 2006

SAFETY, HEALTH AND ENVIRONMENTAL CONSULTANT
(UNIVERSAL WORK, HEALTH AND SAFETY CONSULTANCY LTD).

ENVIRONMENTAL (IMPACT ASSESSMENTS & AUDITS)

Conducted Environmental Audits, Environmental Impact Assessments in pursuant to the legal requirements of **Environmental Management & Coordination Act 1999 (Kenya)** for various farms and industries.

2004-2006

Rose Brothers Agricultural Contractors, Patel Coffee Brothers, Njoro Gardens Ltd, Sher Agencies Ltd, Van den Berg (K) Ltd, Matuikam Agencies Ltd, Geokam Filling Station, Falcon Filling Station .

Nakuru, Kenya

Responsibilities:

Identified potential positive and negative environmental impacts of the stations to (BESP) environment. Carried out pertinent literature search and research into the mitigation measures to remedy the potential negative impacts of the two stations. Developed a comprehensive report that provided guidelines towards safeguarding the environment and promoting workers health & safety.

2004-2006

Mombasa Maize Millers Ltd, Malindi Gineries Ltd, Malindi Salt Works Ltd, Mombasa Polythene Bags Ltd, Polypropylene Bags Ltd, Limca Agricultural Produce Ltd, Gongoni Filling Station.

Mombasa/Malindi/Taveta, Kenya.

Responsibilities

Established and documented environmental impacts of the factories, and predicted likely future impacts. Aailed suggestions on how to protect the adjacent surface water bodies from pollution by meeting the standards set by the Ministry of Development. Determined and evaluated the efficiency of the waste management process and gave recommendations.

Identified the occupational safety and health measures in place and provided input towards betterment of the same.

Spa

2004 - 2006	KETEPA Ltd, Unilever Tea Kenya Ltd, Jumbo Filling Station, Tealand Service Station, Bureti Filling Station, Tea Hotel. <i>Kericho, Kenya</i>
Responsibilities:	Identified the safety and health management practices in place, their efficiency and provided guidelines to meet DOHSS requirements. Carried out pertinent literature search and research into the mitigation measures to remedy the potential negative impacts of the factories. Developed a comprehensive report that provided guidelines towards safeguarding the environment.
2004-2006	Ashut Engineers Ltd, Catalyst Chemicals Ltd, Laxmanmbhai Construction Co Ltd, Budget Housing Ltd, Ceramics Manufacturers Ltd, Chirag Builders, Brush Manufactures Ltd, Patco Industries Ltd, Mombasa Maize Millers (Nairobi), Ramji Ratna & Co Ltd, Supplies & Services, Super Manufacturers Ltd, Dreamland Apartments Ltd. <i>Nairobi, Kenya</i>
Responsibilities:	Evaluated the company's overall environmental performance, generated baseline data, and identified measures for improvement. Assessed the company's use of natural resources, with special attention to water use and waste management practises. Established measures in place to secure the health & safety of personnel and evaluated the facility's fire safety preparedness.
2004-2005	Eastern Produce Kenya Ltd, Corn Products Ltd, Raiply (K) Ltd, <i>Eldoret/Nandi hills; Kenya</i>
Responsibilities:	Collected and collated data relevant to the study as part of the team constituted to audit the three factories. Provided key input into the development of suitable environmental management plans for the firms, which addressed issues related to water use, waste management, occupational health, fire safety and health aspects of indoor environments with respect to air quality. Took active role in compilation of the consolidated environmental audit report for the study.

OCCUPATIONAL SAFETY & HEALTH TRAININGS

2005-2006	Conducted Occupational Safety and Health trainings for various firms and industries throughout the country in pursuant to the legal requirements of Factories and Other Places of Work Act Cap 514 (Safety and Health Committees) Rules 2004 (Kenya) . Among them Kenya Association of Manufacturers (KAM) Kisumu and Nakuru chapter, Unilever Tea (K) Ltd, Eastern Produce Kenya Ltd, Sher Agencies, Shalimar Flowers, Panda Flowers, Brush Manufacturers Ltd, Banbros (K) Ltd, Tim Sales Ltd, Sasini Tea & Coffee (Kipkebe Tea Factory), Comply Industries Ltd, George Williamson Tea Ltd, Palmac Oil Refineries Ltd, Economic Housing Group Ltd, Van Den Berg Kenya Ltd, Nini Ltd, Blue Sky Ltd, Fontana Ltd, Kiptagich Tea Estates Ltd , Plantation Plants Ltd, Savannah Plants Ltd, Epco Builders, Welding Alloys, Kitale Industries Ltd,
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SNZ

Enkasiti Roses Ltd, Keroche Industries Ltd, High chem East Africa Ltd, Patel Coffee Estates Ltd, Patco Industries Ltd, Central Tea Group Ltd among others.

Responsibilities:

Performed research on occupational health & safety and developed various training programs for different cadres of workers in numerous companies ranging from inter alia; timber industry, building and construction, chemical processing, tea industry, food processing and the floricultural sector. Trained various staffs in occupational safety and health, chemical safety and fire safety among others.

**FIELD ATTACHEE.
June – August 2002**

Kenya Wildlife Service (KWS), Lake Nakuru National Park.

- ❖ Sampled and analyzed the Nakuru Town Sewage for contaminant levels.
- ❖ Sampled and analyzed water samples of the Lake Nakuru.
- ❖ Collected and collated wildlife and bird counts data for Lake Nakuru National Park, Research station.
- ❖ Carried out biomass inventory of the invasive species in the Lake Nakuru National Park
- ❖ Participated in the World clean-up Day courtesy of the Wetland Working Group.
- ❖ Participated in both animal and bird counts of the Lake Nakuru National Park and other Rift Valley Lakes.

ACADEMIC QUALIFICATIONS

DURATION	INSTITUTION	AWARD
December 2010	Bureau Veritas (Dubai) Ltd	LEAD AUDITOR/TRAINER EN BS 50001:2011 Energy Management Systems Certificate
September 2010	Bureau Veritas (Poland) Ltd	CDM/JI LEAD Verifier Certificate
October 2009	Bureau Veritas (K) Ltd	LEAD AUDITOR/TRAINER ISO 14001:2004 Environmental Management Systems Certificate.
February 2009	Bureau Veritas (K) Ltd	LEAD AUDITOR/TRAINER ISO 9001:2008 Quality Management Systems Certificate.
October – November 2005	Universal Work Health & Safety Consultancy Ltd.	Certificate in Occupational Health and Safety for competent Persons as provided in the Health and Safety Committee Rules 2004
1998-2003	Egerton University.	BSc. Natural Resources Management (Second Class Honours-Upper Division).
1993-1996	Lubinu Secondary School.	K.C.S.E certificate Attained a mean grade B- (Minus).

Enka

CAREER OBJECTIVES

Short term

To seek relevant and challenging position in an enabling corporate environment where I would be able to translate the knowledge, skills and experience acquired into practice and to aspire to contribute positively to the organizational goals.

Long term

Seeking to see myself advancing to a position of leadership and in a situation calling for total dedication, hard work, creativity, implementation of projects, evaluation, decision making, lead and inspire others in an open honest way to enable the organization achieve its long term strategic aspirations more competitively.

ADDITIONAL INFORMATION

WORKSHOPS & SEMINARS:

Attended workshop for *"solid and liquid waste treatment, preconditions, technology and utilization"* on December 2005 presentation for NEMA auditors, focusing on the improvement of the environment and making use of the waste generated other than disposing it.

Federation of Kenya Employers workshop (Coast Chapter) on occupational safety and health and environmental management focussing on occupational safety and health at the workplace with reference to legislation by Directorate of Occupational Safety and Health Services. Further, good environmental management practices for the production sector and environmental auditing/impact assessment requirements presentations by National Environment Management Authority (NEMA) officials. March 2007

Kenya Association of Manufacturers workshop (Coast Chapter) for occupational safety and health and environmental management presentations by Directorate of Occupational Safety and Health Services and National Environment Management Authority (NEMA) officials. June 2007.

Kenya Association of Manufacturers workshop (Coast Chapter) workshop on Environmental Management & Coordination (Waste Management) Regulations, 2006 and Environmental Management & Coordination (Water Quality) Regulations, 2006.

VITAL QUALITIES:

- ❖ Good oral and written communication skills.
- ❖ Assertive with good interpersonal skills; team player.
- ❖ Credibility and flexibility to deal with people at varied levels and cultural background; persuasive.
- ❖ Pro-active, highly motivated, adheres to deadlines, possess problem solving skills and a quick learner.
- ❖ Committed to highest ethical skills.

SKILLS:

- ❖ Computer literacy.
- ❖ Occupational Health and Safety Trainings.
- ❖ Environmental Impact Assessment.
- ❖ Environmental Auditing.
- ❖ Report writing.

Enza

LANGUAGES:

	<u>Spoken</u>	<u>Written</u>	<u>Read</u>
▪ English	Excellent	Excellent	Excellent
▪ Kiswahili	Good	Good	Good

INTERESTS:

- ❖ Conservation.
- ❖ Traveling.
- ❖ Community work participation.
- ❖ Watching football.

REFERIES**1. Mr. Walter Rono**

General Manager,
Bureau Veritas (K) Ltd,
P. O. Box 41622-80100
Mobile: +254722606886,
NAIROBI, KENYA.

2. Mrs. Arnolda Chao.

Executive Officer, Regulatory Services,
Kenya Association of Manufacturers (KAM),
P.O Box 30225-40100,
NAIROBI, KENYA.
Mobile: +254 722 830990.

3. Mr. Anthony Ngochoch,

Quality Improvement Manager,
Coca-Cola East & Central Africa Ltd,
P.O. Box 300134-00500,
NAIROBI, KENYA.
Mobile: +254 725699989



Edga

Date: 08th June, 2026

[Signature of the staff Member]

Full name of staff member: _____ EDGAH M. AMBAZA _____

Full name of authorized representative: _____ EDGAH M. AMBAZA _____



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0759

Application Reference No:

NEMA/ENVIS/ELA/05332

M/S Edgah Ambaza Malenge

(individual or firm) of (address) P.O.BOX 50677, 00100,Nairobi General Post Office

is licensed to practice in the capacity of a **Lead Expert** registration number **NEMA/ENVIS/EL/0759** in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: 27th January 2026

Expiry Date: 31st December 2026

Newton Ombese

For **DIRECTOR GENERAL**

National Environment Management Authority

P.T.O.



ISO 9001 : 2015 Certified

Eddy Okelo Otieno – NEMA Lead Expert (Licence NEMA/ENVIS/EL/0253; Reg. 8090)

Curriculum vitae, signed 6 June 2026, and NEMA Experts Licence endorsed "To be used for Ministry of Health Level Six (6) Hospitals in Londiani and Bungoma" – 8 pages

EDDY OKELO

P.O.BOX 30670-00100 Nairobi • (+254)712503327 • okelloedu@gmail.com

PERSONAL SUMMARY

Enthusiastic and highly motivated Environmental Health and Safety personnel with practical hands-on approach in trainings, audits and program implementation and who is well organized and proactive in providing services with the determination to achieve the best results. Able to collect and analyze information, digest facts/figures and quickly grasp complex technical issues. Excellent negotiation and problem-solving skills and swiftly identify the root of any problem and develops effective solutions.

EDUCATION

Nairobi University, Nairobi	Ongoing
Masters in Project Planning and Management	
Second Class Honors	
Kenyatta University, Nairobi	December 2013
Bachelor of Environmental Science	
Second Class Honors	
Strathmore School, Nairobi	November 2007
KCSE B+	

PROFESSIONAL COURSES

NEBOSH

International General Certificate in Occupational Safety and Health	March 2017
The COSHH Manager certification	June 2020

PROFILE

- *Safety & health and committee trainer*
- *Scaffolding, and work at height trainer*
- *Construction safety*
- *ISO implementation*
- *Environmental auditing*
- *Environmental Impact Assessment*
- *Fire safety trainer*
- *Environmental Awareness*
- *Chemical safety trainer*
- *Safety Risk Assessment*
- *Safety and health auditing*
- *Fire safety auditing*

EXPERIENCE

Everest Maven Group Limited

2016 to Present

Environment Safety and Health Consultant

Roles and Responsibilities

Role and Responsibilities include; HSE supervision on related projects, partaking occupational Fire safety, health and safety trainings; Gap analysis, Implementation and Documentation for ISO 9001, ISO 45001 and OHSAS 18001; Under Lead Advisors participate in Fire Safety Audits, Safety and Health Audits. As a NEMA Lead auditor conduct Environment Audits, Environmental Impact Assessments and noise survey audits.

Some notable clients:

- In the company of approved advisers, offered Consulting services on, Safety and Fire safety audits and environment audits and Environmental Impact Assessments for Mantrac K. Ltd, Bureau Veritas (k) Ltd, Naivas Limited, Safaricom Limited and Arvind Engineering among others
- Noise survey audits for clients such as Bollore Transport and Logistics, Pesapal Limited, Exotic Penina Fields, Bamburi Cement Ltd, Nduti Factory among others.
- Safety and health systems development and implementation which include; Developing permits to work, Safe work and operating procedures, Fire safety signages, job hazard and job safety analysis, accident investigation procedures as well as risk assessments to clients such as Channa Construction Ltd.
- Conducted fire drills for companies such as Sisibo Tea Factory, Pesapal and Earth oil among others.
- Conducted trainings on Fire Safety and occupational safety trainings at Chania Supermarket, Sea Harvest Limited, Jubilee Insurance Group, Lipton Teas and Infusions among others.
- Consulted on matters of Environment Impact assessments for clients such as Boly Industries Kenya Limited, Vitrocow Genetics Limited, Ministry of Water, Sanitation and Irrigation, Ruwa Enterprises, Kenbro limited and Exotic Penina Limited among other developers.
- Consulted on ISO 9001, ISO 45001 and OHSAS 18001 implementation and documentation for clients such as Sika Kenya, Metal Crowns Ltd, Bentworth and Geoff Griffiths among others.

Unisafe Fire and Safety Consultancy Limited

Jan 2018 to Present

(Part Time contractor)

Environment Safety and Health Contractor

Roles and Responsibilities

Role and Responsibilities include; HSE supervision on related projects, partaking occupational Fire safety, health and safety trainings; Conducting Fire Safety Audits, Safety and Health Audits as well as Environment Audits.

Nu-Plan Engineering and Design

Jan 2017 to Present

(Permanent and as a Part time contractor)

Safety, Health and Environment Manager

Responsibilities

- Drafting, implementing and reviewing company safety policies.
- Drafting, implementing and reviewing safe systems of work and procedures including permit to work, standard operating procedures and job hazard analysis for works at height, excavation works, cementing, confined space entry, electrical installations among other dangerous work processes.
- Regular training of staff on safety including PPE usage and management, safe work procedures, dangerous work processes, ergonomics, fire safety among others.
- Ensuring compliance with Client (Total Kenya, Tata Chemicals) safety requirements and local legislation
- Evaluating practices, procedures and facilities to assess risk
- Conducting toolbox meetings at various construction sites
- Managing construction site safety including training and supervising painting works, hot works, electrical installations, confined space entry, work at height
- Conducting training needs assessments and delivering trainings and presentations on health and safety matters
- Recommending solutions to issues, improvement opportunities and new prevention measures

- Reporting on health and safety awareness, issues and statistics through weekly reports.
- Conducting accident investigations to determine root causes of accidents and incidents.
- Some of the notable projects engaged in include Huduma centers renovation, Kenya Railways commuter train renovation, Total Kenya service stations construction and renovations, Tata Chemicals service railway line maintenance, Toyota Kenya vehicle yard and service center

Bureau Veritas, (K) Ltd (Part Time Contractor)

June 2016 to Present

Safety, Health and Environment Consultant

- In the company of approved advisers, offered Consulting services on, safety and fire safety audits for, VTTI Kenya (Mombasa), Bollore Transport and Logistics, Mombasa Island Container Terminal Ltd, Deepa Industries, Sankara Hotel, Bamburi, Intercontinental Hotel and Dusit D2 Hotel among others.
- Offered consulting services on Fire Safety systems assessments and verification to Crown Hotel Plaza.
- Offered consulting services on air quality, dust and noise surveys for Companies such as Savanna Cement Limited and East Africa packaging Industry among others.

Kaileys Consortium Limited

Aug 2014 to Feb 2016

Environment Safety and Health Consultant

- Offered trainings on Fire safety and occupational Safety and Health to diverse companies including; Earth Oil Epz K.Ltd, Waridi Fowers Limited, Milly Fruits Limited, New Wide Garments Epz K. Ltd Athi-River, Manchester Outfitters and Auto Sueco (EA) among others.
- Under a DOSHS advisor, offered Consulting Services on Statutory Safety and Health Audits, Fire Safety Audits and Risk Assessments for different companies including; Finlays Kenya Limited, Florensis Kenya Limited, and Soliton Telmec Limited among others.
- Offering consulting services on Environmental Impact Assessments and Audits for companies such as Blooming, Flower Bulbs Limited, New Wide Garments Epz K. Ltd and Deepa Industries and Dusit D2 Hotel among others.
- Under a DOSHS approved advisor Offered Consulting Services on Noise measurements and Air Quality Measurements to companies such as Western Seed Company Limited and Finlays Kenya Limited among others.

SUMMARY OF SKILLS

- Inspection and Hazard Identification skills
- Assessment and Auditing skills (Safety, Health and Environment)
- ISO gap analysis and documentation
- Organization skills, Research and Team work skills
- Environment, Health and Safety project management

REGISTRATION TO PREFESSIONAL BODIES

- Environment Impact Assessment & Audit (EIA/EA) Lead Expert. Nema Reg. No: 8090
- Member of Environment Institute of Kenya since 2014

REFEREES

Evans Totona

Cemea Limited

NEMA Lead Reg. No 8049

0726397739

Kevin Kimani

EHS Consultant

Everest Maven Group Ltd

0725814558

Nema Lead Reg. 8071

OK

Date: 06th June, 2026

[Signature of the staff Member]

Full name of staff member: _____ EDDY OKELO _____

Full name of authorized representative: _____ EDDY OKELO _____



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0253

Application Reference No:

NEMA/ENVIS/ELA/03118

M/S Eddy Okelo Otieno

(individual or firm) of (address) **P.O.BOX 30670, 00100,Nairobi General Post Office**

is licensed to practice in the capacity of a **Lead Expert** registration number **NEMA/ENVIS/EL/0253** in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: **5th January 2026**

Expiry Date: **31st December 2026**

David Ongare

For **DIRECTOR GENERAL**

National Environment Management Authority

To be used For Ministry
of Health Level Six (6)
Hospitals in Londiani
and Bungoma

06/06/2026

P.T.O.



EDDY OKELO

P.O.BOX 30670-00100 Nairobi • (+254)712503327 • okelloedu@gmail.com

PERSONAL SUMMARY

Enthusiastic and highly motivated Environmental Health and Safety personnel with practical hands-on approach in trainings, audits and program implementation and who is well organized and proactive in providing services with the determination to achieve the best results. Able to collect and analyze information, digest facts/figures and quickly grasp complex technical issues. Excellent negotiation and problem-solving skills and swiftly identify the root of any problem and develops effective solutions.

EDUCATION

Nairobi University , Nairobi	Ongoing
Masters in Project Planning and Management	
Second Class Honors	
Kenyatta University , Nairobi	December 2013
Bachelor of Environmental Science	
Second Class Honors	
Strathmore School , Nairobi	November 2007
KCSE B+	

PROFESSIONAL COURSES

NEBOSH

International General Certificate in Occupational Safety and Health	March 2017
The COSHH Manager certification	June 2020

PROFILE

- Safety & health and committee trainer
- Fire safety trainer
- Scaffolding, and work at height trainer
- Environmental Awareness
- Construction safety
- Chemical safety trainer
- ISO implementation
- Safety Risk Assessment
- Environmental auditing
- Safety and health auditing
- Environmental Impact Assessment
- Fire safety auditing

EXPERIENCE

Everest Maven Group Limited

2016 to Present

Environment Safety and Health Consultant

Roles and Responsibilities

Role and Responsibilities include; HSE supervision on related projects, partaking occupational Fire safety, health and safety trainings; Gap analysis, Implementation and Documentation for ISO 9001, ISO 45001 and OHSAS 18001; Under Lead Advisors participate in Fire Safety Audits, Safety and Health Audits. As a NEMA Lead auditor conduct Environment Audits, Environmental Impact Assessments and noise survey audits.

Some notable clients:

- In the company of approved advisers, offered Consulting services on, Safety and Fire safety audits and environment audits and Environmental Impact Assessments for Mantrac K. Ltd, Bureau Veritas (k) Ltd, Naivas Limited, Safaricom Limited and Arvind Engineering among others
- Noise survey audits for clients such as Bollore Transport and Logistics, Pesapal Limited, Exotic Penina Fields, Bamburi Cement Ltd, Nduti Factory among others.
- Safety and health systems development and implementation which include; Developing permits to work, Safe work and operating procedures, Fire safety signages, job hazard and job safety analysis, accident investigation procedures as well as risk assessments to clients such as Channa Construction Ltd.
- Conducted fire drills for companies such as Sisibo Tea Factory, Pesapal and Earth oil among others.
- Conducted trainings on Fire Safety and occupational safety trainings at Chania Supermarket, Sea Harvest Limited, Jubilee Insurance Group, Lipton Teas and Infusions among others.
- Consulted on matters of Environment Impact assessments for clients such as Boly Industries Kenya Limited, Vitrocow Genetics Limited, Ministry of Water, Sanitation and Irrigation, Ruwa Enterprises, Kenbro limited and Exotic Penina Limited among other developers.
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Unisafe Fire and Safety Consultancy Limited

Jan 2018 to Present

(Part Time contractor)

Environment Safety and Health Contractor

Roles and Responsibilities

Role and Responsibilities include; HSE supervision on related projects, partaking occupational Fire safety, health and safety trainings; Conducting Fire Safety Audits, Safety and Health Audits as well as Environment Audits.

Nu-Plan Engineering and Design

Jan 2017 to Present

(Permanent and as a Part time contractor)

Safety, Health and Environment Manager

Responsibilities

- Drafting, implementing and reviewing company safety policies.
- Drafting, implementing and reviewing safe systems of work and procedures including permit to work, standard operating procedures and job hazard analysis for works at height, excavation works, cementing, confined space entry, electrical installations among other dangerous work processes.
- Regular training of staff on safety including PPE usage and management, safe work procedures, dangerous work processes, ergonomics, fire safety among others.
- Ensuring compliance with Client (Total Kenya, Tata Chemicals) safety requirements and local legislation
- Evaluating practices, procedures and facilities to assess risk
- Conducting toolbox meetings at various construction sites
- Managing construction site safety including training and supervising painting works, hot works, electrical installations, confined space entry, work at height
- Conducting training needs assessments and delivering trainings and presentations on health and safety matters
- Recommending solutions to issues, improvement opportunities and new prevention measures
- Reporting on health and safety awareness, issues and statistics through weekly reports.

- Conducting accident investigations to determine root causes of accidents and incidents.
- Some of the notable projects engaged in include Huduma centers renovation, Kenya Railways commuter train renovation, Total Kenya service stations construction and renovations, Tata Chemicals service railway line maintenance, Toyota Kenya vehicle yard and service center

Bureau Veritas, (K) Ltd (Part Time Contractor)

June 2016 to Present

Safety, Health and Environment Consultant

- In the company of approved advisers, offered Consulting services on, safety and fire safety audits for, VTTI Kenya (Mombasa), Bolllore Transport and Logistics, Mombasa Island Container Terminal Ltd, Deepa Industries, Sankara Hotel, Bamburi, Intercontinental Hotel and Dusit D2 Hotel among others.
- Offered consulting services on Fire Safety systems assessments and verification to Crown Hotel Plaza.
- Offered consulting services on air quality, dust and noise surveys for Companies such as Savanna Cement Limited and East Africa packaging Industry among others.

Kaileys Consortium Limited

Aug 2014 to Feb 2016

Environment Safety and Health Consultant

- Offered trainings on Fire safety and occupational Safety and Health to diverse companies including; Earth Oil Epz K.Ltd, Waridi Fowers Limited, Milly Fruits Limited, New Wide Garments Epz K. Ltd Athi-River, Manchester Outfitters and Auto Sueco (EA) among others.
- Under a DOSHS advisor, offered Consulting Services on Statutory Safety and Health Audits, Fire Safety Audits and Risk Assessments for different companies including; Finlays Kenya Limited, Florensis Kenya Limited, and Soliton Telmec Limited among others.
- Offering consulting services on Environmental Impact Assessments and Audits for companies such as Blooming, Flower Bulbs Limited, New Wide Garments Epz K. Ltd and Deepa Industries and Dusit D2 Hotel among others.
- Under a DOSHS approved advisor Offered Consulting Services on Noise measurements and Air Quality Measurements to companies such as Western Seed Company Limited and Finlays Kenya Limited among others.

SUMMARY OF SKILLS

- Inspection and Hazard Identification skills
- Assessment and Auditing skills (Safety, Health and Environment)
- ISO gap analysis and documentation
- Organization skills, Research and Team work skills
- Environment, Health and Safety project management

REGISTRATION TO PROFESSIONAL BODIES

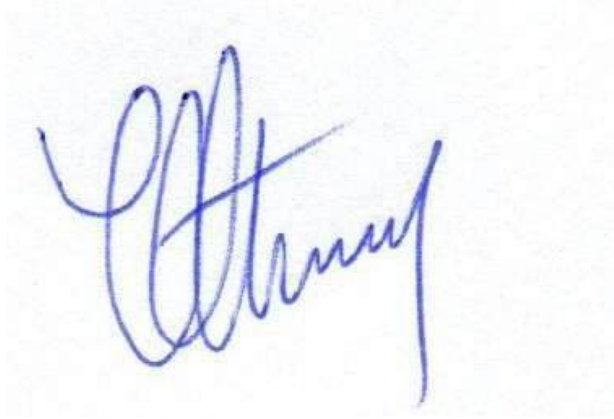
- Environment Impact Assessment & Audit (EIA/EA) Lead Expert. Nema Reg. No: 8090
- Member of Environment Institute of Kenya since 2014

REFEREES

Evans Totona
Cemea Limited
NEMA Lead Reg. No 8049
0726397739

Kevin Kimani
EHS Consultant
Everest Maven Group Ltd
0725814558
Nema Lead Reg. 8071

Signature – 1 page

A handwritten signature in blue ink, appearing to be 'Totona Evans Kibon', written in a cursive style.

Totona Evans Kibon – NEMA Lead Expert (Licence NEMA/ENVIS/EL/0356; Reg. 8049)

Curriculum vitae, signed 8 June 2026, and NEMA Experts Licence endorsed "For proposed South Rift & Londiani Referral Hospitals by the State Department of Health" – 4 pages

CURRICULUM VITAE (CV) FOR TOTONA EVANS KIBON

Position: Lead EIA/ EA Expert, Safety and Health Advisor & Fire Safety Auditor

Name of Firm: CEMEA LIMITED

Name of consultant: Totona Evans Kibon

Profession: OCCUPATIONAL SAFETY AND HEALTH ADVISER, FIRE SAFETY AUDITOR & TRAINER,
EIA & EA LEAD EXPERT

Date of Birth: October 7th 1986

Years with firm: 3 years Nationality: Kenyan

Membership in Professional Societies:

-
- a. Lead EIA/EA Expert duly registered by National Environment Management Authority (NEMA) –Reg. No 8049
 - b. Registered Safety and Health Adviser & Fire Safety Auditor under the Directorate of Occupational Safety and Health Services (DOSHS)- Reg. No. OSH/ADV III & OSH/FSA 121
 - c. Registered member of the Environmental Institute of Kenya
-

Key Qualifications:

- ❖ Master in Occupational Safety and Health
 - ❖ Trained in fire safety, operations and safety at the Institute of Fire Engineers (UK)
 - ❖ Implemented general environmental health and safety in different sectors for over 5 years
-

Education:

COLLEGE:	INSTITUTE OF FIRE ENGINEERS (UK) IFE Level 2 Certificate in Fire Science, Operations and Safety
POST GRADUATE DEGREE:	JKUAT MSC, Occupational Safety and Health
UNDERGRADUATE DEGREE:	KENYATTA UNIVERSITY (2005 -2009). Bachelor of Environmental Studies and Community Development
Degree Attained	Second Class Honors (Upper Division)
SECONDARY EDUCATION:	NAIROBI SCHOOL (2000-2003) Kenya Certificate of Secondary Education
Grade Attained	B + (Plus)

Page 1 of 3



Employment Record:

June 2016

To: To-date -CEMEA LIMITED

Positions Held: Specialist in Environment Health and Safety. In-charge of Safety & Health Auditing, Health and Safety Risk Assessments, Fire Safety Auditor, Environmental Impact Assessments and Audits as well as trainings in EHS.

November 2012 to: July 2015- TRANSEAST (K) LIMITED

Responsibilities

- Implementation of Management System for Quality and EHS Management System
- Conducting trainings and induction of new employees on HSE issues, policies
- Implementation of Journey Management Procedures
- Conducting Accident and Incident Investigations and prepare reports
- Administrations of Permits to Work to sub-contractors and staff for non-routine work
- Perform HSE duties on client sites including out of the country sites
- Conducting of workers Toolbox and Safety Meetings
- Conducting Risk Assessment and proposing corrective actions
- Review pre-trip inspection checklists of trucks and trailers
- Perform other tasks as management may assign

Field Assignments:

Involved in Twiga Rig Shunt (Rig 804) in February- March 2013- Tullow B V site as the HSE supervisor.

- ❖ Involved in the camp move of BGP camp from Marsabit to Kerio Valley (Baringo) –Tullow B V Site as the HSE supervisor during offloading in Baringo in January- February, 2013

November 2011 to Nov 2012

Technical EHS Officer at Global EHS CONSULTING –experts in Environment, Health and Safety (Environmental Impact Assessment and Health and Safety Auditing)

Languages:

a. Swahili/English	Spoken/Written	Excellent Knowledge
	Written	Working Knowledge

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

AAH

Date: 08th June, 2026


[Signature of the staff Member]

Full name of staff member: _____ TOTONA EVANS KIBON _____

Full name of authorized representative: _____ TOTONA EVANS KIBON _____





NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0356

Application Reference No:

NEMA/ENVIS/ELA/03421

M/S Totona Evans Kibon

(individual or firm) of (address) P.O.BOX 42550, 80100, Mombasa GPO

is licensed to practice in the capacity of a **Lead Expert** registration number NEMA/ENVIS/EL/0356 in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: 8th January 2026

Expiry Date: 31st December 2026

For PROPOSED SOUTH RIF & LONDIANI
REFERRAL HOSPITALS BY STATE
DEPARTMENT OF HEALTH

David Ongare

For DIRECTOR GENERAL

National Environment Management Authority

AM
8/06/2026

P.T.O.



ISO 9001:2015 Certified

Purity Mukami Kariuki – Registered Associate Expert, NEMA

Curriculum vitae, signed 16 June 2026 – 4 pages

PURITY MUKAMI KARIUKI

Cell Phone: +254724770748

Email: Purity300@gmail.com

P.O. Box 93776, 80102 Mombasa

PROFESSIONAL SUMMARY

As a highly skilled and passionate professional, I have acquired key skills in policy formulation, project management as well as excellent people skills. My 2+ Years' experience has equipped me with expertise that has enabled me plan, execute and deliver in Key projects. My goal is to secure a suitable role that will enable learning and growth as professional.

SKILLS AND COMPETENCE

- Excellent communication and interpersonal skills.
- Mastery of negotiation and Collaboration skills.
- Sharp networking skills.
- Leadership and management skills.
- Keen eye and attentive to detail.
- Unique ability in ideas and innovations.
- Proficient in Microsoft Office suite: excellent knowledge of MS Word, Microsoft Outlook, Excel, PowerPoint, Databases, Spreadsheets and the Internet.
- Excellent telephone etiquette.
- Excellent planning and organizing skills.

WORK EXPERIENCE

August 2015 to Date

Global Environmental and Health Safety (EHS) Consulting

Assistant Associate Expert

Roles and responsibilities:

- ❖ Assisted in preparation of Environmental Impacts Assessment/Audit reports
- ❖ Carrying out public/stakeholder consultation on a proposed project
- ❖ Visits to proposed project sites and data collection
- ❖ Assisting in trainings Occupational Health and Safety sessions
- ❖ Noise Survey for Workplaces
- ❖ Health and Safety Audits, Risk Survey, Fire Audits and workplace policy formulation.
- ❖ Negotiate for consultant fees on behalf of the Firm

Sept –Dec 2014

National Environment Management Authority Mombasa County office

Internship

In my tenure I have been tasked with the following roles:

- ❖ Assisting in dispatching Environmental Assessment Impact (EIA) Reports to various lead agencies
- ❖ Assisting in data entry and database management
- ❖ Recording public complains and attending to environmental incidences with NEMA officers
- ❖ Participating in Environmental inspections with Environmental Officers
- ❖ Providing advice to public on various environmental matters
- ❖ Providing exemplary services at the waste management and water quality section mostly in

PURITY MUKAMI KARIUKI

Cell Phone: +254724770748

Email: Purity300@gmail.com

P.O. Box 93776, 80102 Mombasa

- processing application of licenses.
- ❖ Monitoring of compliance of the licensed projects and facilities

Feb –Apr 2014

National Environment Management Authority Coastal Regional office

Attachee

In my tenure I have been tasked with the following roles:

- ❖ Receiving, filling and reviewing of EIA and Environmental Audits
- ❖ Conducting EIA review, site verification and compilation of site visits
- ❖ Dispatching EIA reports to relevant Lead Agencies for their review and comments.
- ❖ Recording Public complains and attending to environmental incidences
- ❖ Undertaking environmental inspections and compilation of inspection reports
- ❖ Planning and execution of Coastal and Marine environmental meetings and workshops.

Dec 2012 –Apr 2013

NEMA Headquarters at Coastal, Marine and Fresh Waters Department

Volunteer

In my tenure I have been tasked with the following roles:

- ❖ Wetland Monitoring and assessment
- ❖ Development, validation and Implementation of coastal and marine pollution control guidelines
- ❖ Documentation of baseline information on environmental issues and best practices in constructed wetlands and mining activities
- ❖ Stakeholder mobilization and sensitization on wetlands and aquatic resource conservation
- ❖ Development and implementation of integrated wetland management plans

EDUCATIONAL BACKGROUND

2011-2015

Bachelor of Environmental Studies (Community Development)

Kenyatta University

Second Class Honours (Upper Division)

2006-2009

Kenya Certificate of Secondary Education (KCSE)

Mary Leakey Girls' High School

2001-2005

Kenya Certificate of Primary Education

St. Agnes Primary School

RECOGNITION & PROFESSIONAL AFFILIATIONS

- ❖ Registered as Associate Expert by NEMA
- ❖ Member of Environment Institute of Kenya
- ❖ Member of the Kenya Wetland Forum
- ❖ Member of Kenya Forest Working Group.

PURITY MUKAMI KARIUKI

Cell Phone: +254724770748

Email: Purity300@gmail.com

P.O. Box 93776, 80102 Mombasa

Co-author: BOOK OF ABSTRACTS,

4th National museums of Kenya Biannual conference; Effects of climate change on communities in livelihood in Kenya.

Participated in International Essay Competition

"Dreaming the world without poverty"

AVAILABILITY

Available Immediately.

REFEREES

Upon request.

Date: 16th June, 2026


[Signature of the staff Member]

Full name of staff member: _____ PURITY MUKAMI KARIUKI _____

Full name of authorized representative: _____ PURITY MUKAMI KARIUKI _____

Venlensa Atieno Odhiambo – NEMA Lead Expert (Licence NEMA/ENVIS/EL/0745)

Curriculum vitae – 14 pages

VENLENSA ATIENO ODHIAMBO

Environmental Health & Safety Consultant | ESG Practitioner | NEMA Lead Expert

Mombasa, Kenya | ✉ venlensaodhiambo1@gmail.com | ☎ +254 702463337/738802225

Languages: English, Kiswahili

PROFESSIONAL PROFILE

Results-driven Environmental, Health, and Safety (EHS) Consultant with over 7 years' experience in Environmental Impact Assessments (EIA), Environmental Audits (EA), Occupational Safety & Health (OSH) audits, and ESG compliance. Proven expertise in helping organizations achieve statutory compliance with EMCA, OSHA, and ISO standards, while implementing sustainable environmental and workplace safety solutions. Strong background in stakeholder engagement, policy formulation, training, and project management across diverse industries.

FOR TENDER PURPOSE

EDUCATION

PROPOSED LEVEL 6 HOSPITAL

MS	University of Nairobi Masters of Environmental Law	Ongoing
BS	Pwani University Environmental Planning and Management 2013- 2017	Second Class Honors (Upper Division)

PROFESSIONAL REGISTRATIONS

NEMA LEAD EXPERT	NEMA/ENVIS/RC/0076
ENVIRONMENTAL INSTITUTE OF KENYA (EIK)	EIK/2/1502

SPECIALIZED TRAINING AND CERTIFICATION

Upcoming Short Course

1. **Key Essentials:** Investment Rules, Sustainable Development and the Law Short Course
2. **Key Essentials:** Wealth Economy, Sustainable Development and the Law Short Course

Venlensa - 1

(Lucy Cavendish College: Cambridge University)

Ongoing Short Course

1. Climate Change and Carbon Trading

Environmental Institute of Kenya (EIK) – Ongoing

Finalized Short Courses

1. Key Essentials: The Sustainable Development Goals and the Law

(Lucy Cavendish College: Cambridge University)

2. Key Essentials: The Paris Agreement, Sustainable Development and the Law

(Lucy Cavendish College: Cambridge University)

3. Key Essentials: The Global Biodiversity Framework, Sustainable Development and the Law

(Lucy Cavendish College: Cambridge University)

4. Certified in Environmental, Social and Governance (ESG) Practices

Environment Institute of Kenya (EIK), Certificate No. EIK/ESG/2025/3989/2025

5. Lead Auditor: PR357-ISO 45001:2018 LEAD AUDITOR (Occupational Health and Safety Management System)

3Fold Education Centre

August – September 2022

WEBINARS ATTENDED

- 1) Global Webinar Series 2024: Key Considerations in the Energy Transition, Spotlight on Infrastructure:

Hosted By: UN Environment Programme (9th May 2024)

- 2) Refresher on Integration of Extended Producer Responsibility in the EIA/EA Process

Hosted by: Environmental Institute of Kenya (EIK) – 22nd May 2024

- 3) Developing Quality Environmental Audit Reports in 2024.

Hosted by: Environmental Institute of Kenya (EIK) – 31st January 2024

- 4) Global Webinar Session (3) on Strategic Environmental Assessment and Planning Tools for Sustainable Oceans Planning

Hosted by: UN Environment Programme (6th December 2023)

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- 5) Global Webinar Session (2) on The New Energy Mix and The Sustainable Blue Economy: Exploring Challenges and Opportunities
Hosted by: UN Environment Programme (16th November 2023)
- 6) EHS Masterclass – A Beginner’s Guide to EHS Fundamentals.
Hosted By: Dr. Shankar Subramanian – EHS Expert & Senior Faculty, Westford University (30th May 2023)
- 7) Global Webinar on Spill Assessment and Response in Environmentally Sensitive areas.
Hosted by: UN Environment Programme (22nd September 2022)
- 8) Global Webinar on Environmental Sensitivity Mapping for Oil Spill Preparedness and Response.
Hosted by: UN Environment Programme (24th May 2022)
- 9) Global Webinar on Implementing International Conventions to Strengthen National Oil Spill Contingency Planning and Risk Reduction.
Hosted by: UNEP – Global Network on Environment and Oil & Gas (GNEOG) (24th February 2022)
- 10) Executive Webinar on Oil & Gas Operations in Environmentally Sensitive areas.
Hosted by: GNEOG (7th November 2021)
- 11) Occupational Safety and Health in Environment Social Impact Assessment (ESIA) Process
Hosted by: Environmental Institute of Kenya (EIK) – (16th September 2021)
- 12) Understanding Summary Project Report (SPR), Comprehensive Project Report (CPR) and Study Report (SR) in Environmental Social Impact Assessment Process.
Hosted by: Environmental Institute of Kenya (EIK) – (10th August 2021)
- 13) Global Webinar on Available Technologies that Contribute to Climate Mitigation in Upstream Oil & Gas Production.
Hosted by: UN Environment Programme (6th July 2021)
- 14) Executive Webinar on Undertaking Oil Contaminated Site Assessments
Hosted by: GNEOG (30th July 2019)
- 15) Executive Webinar on Environmental Impact Assessments for Upstream Oil & Gas Operations.
Hosted by: GNEOG (30th April 2019)

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CAREER HISTORY

LEAD CONSULTANT – ENVIRONMENTAL, SOCIAL, HEALTH & SAFETY (EHS) & SAFEGUARD SPECIALIST

VENLICHECK INVESTMENT LTD & CEMEA LTD

(JANUARY 2022 TO PRESENT)

Provide environmental and social safeguards, ESIA, environmental audit, OHS, ESG, and regulatory compliance advisory services to public and private sector clients across infrastructure, industrial, utility, and commercial projects. Lead statutory compliance assessments and safeguards documentation in line with EMCA, OSHA, and applicable international standards.

CORE RESPONSIBILITIES

- Lead and conduct Environmental and Social Impact Assessments (ESIA) and Environmental Audits in compliance with EMCA and subsidiary regulations
- Carry out environmental and social safeguards screening and risk categorization for proposed projects
- Undertake site visits and baseline environmental and social data collection
- Prepare ESIA, ESMP, ESMMP, audit reports, and compliance documentation
- Provide statutory compliance advisory under EMCA and OSHA 2007 frameworks
- Conduct Occupational Health & Safety audits and workplace risk assessments
- Deliver OHS training and Safety & Health Committee training programs
- Develop hazard identification and risk assessment (HIRA) and control plans
- Conduct fire safety audits and emergency preparedness assessments
- Prepare environmental and OHS policies and management plans for client organizations
- Support development and implementation of management systems including ISO 45001 OHSMS
- Guide clients through documentation, implementation, and audit readiness for ISO management systems
- Compile audit findings, corrective action plans, and compliance improvement programs
- Lead stakeholder and worker consultation processes during safeguards and audit assignments

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TECHNICAL SERVICE AREAS DELIVERED

Environmental & Social Safeguards

- Environmental Audits
- Environmental & Social Impact Assessments (ESIA)
- Strategic Environmental & Social Assessment support
- ESMP / ESMMP preparation
- Safeguards mitigation and monitoring frameworks

Occupational Health & Safety

- OHS audits
- Workplace risk assessments
- Fire safety audits
- Noise level measurements
- Air quality measurements
- Industrial hygiene assessments

FOR TENDER PURPOSE

PROPOSED LEVEL 6 HOSPITAL

Environmental Monitoring (with accredited partners)

- Ambient air quality monitoring
- Stack emission monitoring
- Noise and vibration monitoring
- Odour assessments

Energy Compliance (with licensed partners)

- Energy audits under Energy Management Regulations

KEY ACHIEVEMENTS

- Supported multiple client organizations to achieve statutory environmental and OHS compliance
- Identified environmental, social, and OHS risks across diverse project types and operations
- Developed and implemented mitigation and control plans for identified EHS risks
- Prepared HSE implementation and monitoring plans for project operations
- Strengthened client compliance systems through audit findings and corrective action frameworks
- Supported organizations toward ISO 45001 OHSMS certification readiness

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ASSISTANT ENVIRONMENT OFFICER

Global EHS Consulting

(January 2019 – December 2021)

Global EHS Consulting is firm of experts that offers consultancy services on environment, health and safety matters.

KEY RESPONSIBILITIES:

- Undertake site visit to determine the baseline information.
- Carrying out Environmental, Impact/Audit Assessments as per the Environmental Management and Coordination Act (EMCA 1999) for the company clients as a NEMA Registered ASSOCIATE EXPERT with supervision of the LEAD EXPERT.
- Develop the HSE management system for the implementation of the project.
- Overall Project management

KEY ACHIEVEMENTS:

Assisting various clients to comply with relevant laws pertaining to their operations and projects.

INTERN

Kenya Revenue Authority (KRA-SOUTHERN REGION) - Facility & Properties Department

(July 2018 – December 2018)

KRA is an agency of the Government of Kenya that is responsible for the assessment, collection and accounting of all revenues that are due to the government in accordance with the laws of Kenya.

KEY RESPONSIBILITIES:

- Executing maintenance orders, purchase requisition, service entry sheets and office supply reservation using SAP Gui System
- General maintenance and supervision of office cleaning
- Preparation of weekly and monthly reports
- Preparation of meeting minutes and database management
- Helping in front office management
- Conducting housing inspection of KRA staff houses
- Supervision of casuals

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- Preparation of Bill of Quantities
- Perform any other duty assigned by supervisor

VOLUNTEER

National Environment Management Authority (NEMA-MOMBASA OFFICE)

(January 2018 – June 2018)

NEMA is a Kenyan government agency responsible for the management of the environment, and environmental policy.

KEY RESPONSIBILITIES:

- Receiving and reviewing Environmental Impact Assessment and Audits
- Participating in Environmental Inspection
- Monitoring of compliance of licensed projects and facilities
- Assisting in site visits and verification
- Receiving and filing complaints from clients within Mombasa County
- Data entry and database management
- Dispatch of EIA reports to various Lead Agencies
- Assisting in front office management
- Providing training and assistance to new volunteers
- Preparing weekly reports

ATTACHEE

Ministry of Lands – Regional Physical Planning Department(Provisional Headquarters, Mombasa)

(May 2014 – September 2014)

The Ministry of Lands has its origin at the Lands Survey Section in the Department of Public Works where it was established in 1903. It oversees all land Administration and Management in the Country. It was initially founded to operate the Crown Lands Ordinance (1902), which is today known as the Government Land Act (Cap 280).

The Ministry of Land, Housing and Urban Development was established in May 2014, through Executive Order No. 2/2014 following the inauguration of the new government that collapsed the hitherto 44 ministries into 18, in accordance with Constitution of Kenya, 2010. In the new

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structure, ministries that previously existed as single entities were merged to form super ministries, some with bigger responsibilities. Thus, the five erstwhile ministries of Land, Housing, Urban Development and Nairobi Metropolitan Development, were joined together to form the Ministry. The Ministry is charged with the responsibility of providing policy direction and coordinating all matters related to lands, housing and urban development.

In the current organization of the Government, the department falls under the Ministry of Lands functioning as a core department working toward helping the ministry attain its core mandates as stipulated by law.

KEY RESPONSIBILITIES:

- Preparation of Action Area Plans
- Preparation of Land Use Plans and Land Capability Mapping Plans
- Preparation of site maps using ArchGis
- Taking Coordinates using Global Positioning System (GPS)
- Data Collection through surveys, observation, interviews, focus group discussion and questionnaires
- Preparation of reports (reports writing)

KEY ACHIEVEMENTS:

- Digitization of maps – Participated in Preparation of Bomani and Kipini East Ward Action Plan Maps.
- Pairwise ranking tool – Prepared a Pairwise ranking tool for data collection
- Conducting feasibility analysis – Conducted feasibility analysis for the Bomani and Kipini East Ward Action Plan.

SELECTED RELEVANT PROJECT EXPERIENCE

1. Project Title: Annual Environmental Audit — Mwache Multipurpose Dam Project (Auxiliary Facilities)

Client: Government of Kenya - Ministry of Water, Sanitation and Irrigation

Contractor: Sinohydro Corporation

Funding: World Bank

Donor-Funded Project: World Bank Funded Project - Mwache Multipurpose Dam

Project Type: Large Infrastructure (Dam & Associated Facilities)

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Facilities Covered: Quarry, batching plants, aggregate crushing units, stockpiles, workers' camps, temporary clinic, access roads, explosive magazines, maintenance workshops

Role: Lead Auditor

Period: December 2025 to January 2026

Project Budget: Core project donor-funded (auxiliary facilities operational)

Specific Safeguards Outputs

- Conducted Annual Environmental Audit for auxiliary infrastructure facilities under dam project
- Prepared Environmental Audit Report covering multi-site auxiliary facilities
- Assessed compliance with ESMP and license conditions
- Audited quarry and aggregate crushing environmental controls
- Audited batching plant emissions, dust and noise controls
- Reviewed hazardous materials and explosives storage safeguards
- Assessed workers' camps environmental health & sanitation safeguards
- Evaluated OHS compliance across workshops and plant areas
- Reviewed waste management and hazardous waste handling systems
- Assessed air quality, noise and vibration control measures
- Evaluated access road environmental and safety safeguards
- Reviewed temporary clinic environmental health compliance
- Prepared Corrective Action and Compliance Improvement Plan
- Developed environmental monitoring and follow-up recommendations
- Verified compliance with national regulations and donor safeguards requirements

2. Project: Asbestos Decommissioning — Kipevu Wastewater Treatment Plant & Pumping Stations

Client: Mombasa Water Supply & Sanitation Company (MOWASSCO)

Funding: World Bank — Water & Sanitation Development Project (WSDP)

Role: Environmental & Social Safeguards / EHS Specialist

Period: 2025

Safeguards Outputs:

- Prepared Comprehensive Project Report (CPR) and ESIA for asbestos removal

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- Developed Environmental & Social Management & Monitoring Plan (ESMMP)
- Prepared hazardous asbestos handling and disposal safeguards plan
- Developed OHS risk assessment and Job Safety Analysis framework
- Designed stakeholder engagement and grievance redress mechanism
- Conducted public participation and PAP consultations
- Prepared WB ESF & ESS compliance framework section
- Developed hazardous waste transport & disposal compliance plan
- Prepared safeguards mitigation & monitoring matrix

3. Project Title: Proposed ESIA for Water Projects — Flocca Program, Kwale County

Client: County Government of Kwale

Program: FLOCCA (Financing Locally-Led Climate Action)

Funding: World Bank (through County Climate Financing Mechanism)

Donor-Funded Project: World Bank — FLOCCA Climate Financing Facility (County Level)

Project Type: Climate & Water Infrastructure (Decentralized Water Projects)

Subprojects Covered:

- Water pans
- Drainage infrastructure
- Small-scale water works
- Community water structures

FOR TENDER PURPOSE

PROPOSED LEVEL 6 HOSPITAL

Role: Environmental & Social Safeguards / ESIA Specialist

Period: [Dec 2024 to March 2025]

Specific Safeguards Outputs

- Conducted Environmental & Social Impact Assessments (ESIAs) for county-level water projects
- Prepared ESIA Reports for decentralized water infrastructure subprojects
- Developed Environmental & Social Management Plans (ESMPs)
- Undertook environmental and social baseline assessments
- Conducted stakeholder and community consultations
- Prepared public participation documentation
- Identified climate and environmental risks for water infrastructure

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- Developed mitigation and monitoring measures
- Assessed community health & safety risks
- Screened subprojects for environmental and social risks
- Prepared safeguards compliance recommendations
- Supported county safeguards approval process

Experience in safeguards assessment for World Bank-supported climate resilience and decentralized water infrastructure projects.

4. Project: ESIA — Chamunyu–Mwamlai Water Pipeline Rehabilitation & Extension

Client: Mombasa Water Supply & Sanitation Company (MOWASSCO)

Funding: Water Sector Trust Fund (UPC Programme)

Safeguards Framework: World Bank OP Safeguards Applied

Project Type: Urban Water Infrastructure

Role: ESIA Associate Expert

Location: Mombasa County

Period: 2023

FOR TENDER PURPOSE

PROPOSED LEVEL 6
HOSPITAL

Specific Safeguards Outputs:

- Prepared ESIA and ESMMP for 3 km water pipeline project
- Conducted environmental and social baseline assessments
- Performed WB safeguards screening and categorization (Category B)
- Developed mitigation and monitoring matrices
- Conducted stakeholder and community consultations
- Prepared labour influx & GBV risk mitigation measures
- Developed OHS and construction safety safeguards
- Prepared WB OP safeguards applicability table
- Conducted resettlement trigger screening
- Developed community health & safety safeguards
- Prepared decommissioning safeguards measures

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5. Project: ESIA Summary Project Reports — Community Water Infrastructure (Water Ponds & Mwakalanga Dam Subprojects), Kwale County

Client: County Government of Kwale

Program: National Agricultural & Rural Inclusive Growth Project (NARIGP)

Funding: World Bank — NARIGP Program

Donor-Funded Project: Yes

Location: Kwale County, Kenya

Year: 2020

Role: Associate EIA Expert — NEMA Registered (Reg. No. 9899)

Key Responsibilities & Specific Safeguards Outputs

- Prepared EIA Summary Project Reports (SPR) for decentralized water infrastructure subprojects including community water ponds and small dam works
- Conducted environmental and social baseline studies covering biophysical and socio-economic receptors
- Undertook environmental and social risk screening and project categorization
- Applied World Bank safeguards screening and policy trigger analysis
- Developed Environmental Management Plans (EMP) with mitigation and monitoring frameworks
- Prepared impact mitigation matrices and compliance monitoring indicators
- Conducted stakeholder and community consultations and documented outcomes
- Prepared public participation records and disclosure documentation
- Developed occupational health & safety (OHS) safeguards measures
- Developed community health and safety risk controls
- Prepared construction-phase environmental and social safeguards controls
- Supported safeguards compliance submission to regulatory authorities

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TECHNICAL SKILLS

- 1) ESIA, ESMP and ESMMP preparation
- 2) Environmental audits and safeguards compliance assessments
- 3) Environmental and social safeguards screening and risk categorization
- 4) OHS risk assessment within ESIA and safeguards frameworks
- 5) ESG and environmental compliance support
- 6) Stakeholder engagement and public participation processes
- 7) Hazardous materials and asbestos safeguards planning
- 8) Climate and water infrastructure safeguards assessment

DECLARATION

I certify that this Curriculum Vitae correctly describes my qualifications, experience, and professional background. I confirm that I am available to undertake the assignment and will carry out the services in good faith and to the best of my ability.

Name: Venlensa Atieno Odhiambo

Signature: _____  _____ **Date:** _____ 29th July 2026 _____

FOR TENDER PURPOSE

PROPOSED LEVEL 6 HOSPITAL

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REFERENCES

Available on request in compliance with data protection regulations

FOR TENDER PURPOSE

PROPOSED LEVEL 6 HOSPITAL

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NEMA Experts Licence, endorsed "For proposed Level 6 Hospital" – 3 pages



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0745

Application Reference No:

NEMA/ENVIS/ELA/04290

M/S VENLENSA ATIENO ODHIAMBO

of P.O.BOX 10167, 80100, Mombasa GPO

is licensed to practice in the capacity of a **Lead Expert**

registration number **NEMA/ENVIS/RC/0076**

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

FOR PROPOSED LEVEL 6 HOSPITAL

VENLENSA ATIENO ODHIAMBO

Issued Date: **26th January 2026**

Expiry Date: **31st December 2026**

David Ongare

For DIRECTOR GENERAL

National Environment Management Authority

P.T.O.



ISO 9001 : 2015 Certified

TERMS AND CONDITIONS

Conditions for Licensing

1. This license expires on 31st December of the year it is issued.
2. The expert shall comply with the Code of Practice and Professional Ethics for experts.
3. The expert shall comply with the attached conditions.

General Conditions

1. All Environment Experts certified and registered in accordance with the provisions of the relevant Regulations may establish professional associations to complement and implement the objectives of the Code of Practice.
2. All Environmental Experts shall act professionally, accurately, fairly and in an unbiased manner in undertaking their work.
3. The Director General, in consultation with relevant stakeholders, may from time to time issue guidelines for the proper conduct of registered Environmental Impact and Audit (EIA/EA) Experts.
4. Every Environmental Expert shall, each year, attend at least two relevant seminars organised by the authority for the purposes of improving the professional expertise of its members.
5. No Expert shall exploit the inexperience, lack of understanding, illiteracy or other lack of technical knowledge in environmental matters of a project proponent, owner or the public, for his personal gain.

Receiving Instructions

1. No Environmental Expert shall act for any project proponent unless he has received written instructions from such project proponent or his authorised agent.
2. An Environmental Expert shall not unreasonably delay the carrying out of instructions received from the project proponent or his authorised agent.
3. An Environmental Expert shall discharge his responsibilities to the project proponent with due diligence and integrity.
4. An Environmental Expert may terminate a contract on carrying out an environmental impact assessment or audit as stipulated in section 8 of the Code of Practice and Professional Ethics of EIA/EA Experts.

Carrying out an EIA/EA

1. An Environmental Expert shall follow relevant regulations or guidelines, and directives issued by the Authority.
2. An Environmental Expert shall take due care and diligence to collect the relevant data to address the significant environmental issues in the various stages of the assessment or audit process and fully acknowledge the source of any data that is not the result of his/her findings.
3. An Environmental Expert shall consult widely with all the relevant agencies, stakeholders, interested parties and the general public on all matters that are likely to affect them.
4. An Environmental Impact Assessment or Audit Report shall be based on the Terms of Reference of the Assignment and shall include all the matters relevant to the findings of the study, all the relevant matters required by statutory provisions, and must be guided by professional standards and judgments.

Responsibility of Lead Environmental Experts

1. An Environmental Lead Expert shall be responsible for the documents prepared by him/her on behalf of the project proponent.
2. An Environmental Lead Expert shall guide the proponent throughout the preparation of the environmental impact assessment and/or environmental audit, and/or during implementation of the Environmental Management Plan.
3. An Environmental Lead Expert shall disclose to a client or employer any relationships of conflicting or competing interests that may influence their judgment prior to the carrying out of work.

Misconduct of Environmental Experts

1. An Environmental Expert who contravenes a provision of the Code of Practice and Professional Ethics shall be deemed to have committed professional misconduct and shall be subject to disciplinary action by the Authority as appropriate and as stipulated in the Code of Practice and Professional Ethics of Environmental Experts.

Disciplinary Action

1. Where an Environmental Expert is found to have committed professional misconduct by the Environmental Experts' Advisory Committee/Authority shall be punished as stated under section 19 of the Code of Practice and Professional Ethics.

Appeals

1. An Environmental Expert aggrieved by the decision of the Authority may apply for the review of such a decision in the High Court.
2. If an application for judicial review shall not have been filed at the expiry of thirty (30) days from the date of the decision of the Authority, the Director General may publicize the disciplinary action taken against the Environmental Expert.

Sharon Kerubo Ondieki – NEMA Associate Expert (Cert. NEMA/EIA/RC/7207; Reg. 13241)

NEMA Certificate of Registration endorsed "For the proposed Level 6 Hospital by the Ministry of Health", with curriculum vitae – 6 pages



FAE 23060487

FORM 1

nema
NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY

1 of 1

For the proposed Level 6 Hospital by the
Ministry of Health.
Sharon Kerubo Ondieki
[Signature]

**NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
CERTIFICATE OF REGISTRATION AS AN ENVIRONMENTAL IMPACT ASSESSMENT/
AUDIT EXPERT**

Certificate No: NEMA/EIA/RC/7207

Application Reference No: NEMA/EIA/ER/15570

This is to certify M/s SHARON KERUBO ONDIEKI

of

P.O Box 42588 - 80100 MOMBASA

(Address) has been registered as an Environmental

Impact Assessment Expert in accordance with the provisions of the Environmental Management and

Coordination Act Cap 387 and is authorized to practice in the capacity of a Lead Expert/Associate

Expert/Firm of Experts (Type) Associate Expert

Expert Registration No: 13241

Issued Date: 12/5/2023

Signature

(Seal)

Director-General
The National Environmental Management Authority

P.T.O.



For the proposed Level 6 Hospital by the
Ministry of Health.
Sharon K Ondieki


Personal Information

CURRICULUM VITAE

Name: Sharon Kerubo Ondieki
Email: sharonkerubo52@gmail.com
Phone Number: +254 704 177 455

PROFESSIONAL SUMMARY

Highly skilled Quality Health Safety and Environment professional with a strong background in conducting risk and impact assessments and analysis to identify and solve complex quality, safety and environmental issues. Strong knowledge of ISO (9001, 45001, 14001) management systems, industry best practices, and emerging trends. Possess excellent leadership, communication, and interpersonal skills to collaborate effectively with cross-functional teams and management. Experienced in conducting comprehensive risk assessments, developing organizational policies and procedures, and delivering engaging training programs including first aid, fire safety and OSH committee.

Education

June 2024	NEBOSH International General Certificate Auditors Guild
December 2019	Bachelor of Environmental Science Second class honors (Upper Division), Kenyatta University, Nairobi
March 2015	Computer Packages Certificate, Microsoft Computer Programs, Distinction Loyal Computer Training College, Nakuru
2014	Kenya Certificate of Secondary Education Nyabururu Girls High School, Kisii

Work Experience

October 2024 –To date

Quality Assistant

The Tal Group (Boss Freight, Makupa Transit Shade Limited, Bulk Storage Limited)

Roles:

- Compile and analyze operational and compliance data across multi-site operations to support management decision-making.
- Monitor and ensure compliance with quality, environmental, and occupational health & safety regulatory requirements across the multi-sites.
- Coordinate preventive and corrective actions, tracking effectiveness to close non-conformances and improve system

CURRICULUM VITAE

performance.

- Participate in internal audits and follow up on audit findings to ensure timely closure of gaps and continuous compliance.
- Support implementation and continuous improvement of ISO 9001:2015 and ISO 45001:2018 management systems.
- Track and follow up on corrective actions arising from external audits and regulatory inspections.
- Conduct site assessments, inspections, and operational audits across the multi-site operations.
- Monitor operational productivity, analyze KPIs, and prepare performance and compliance reports.
- Lead and support quality, safety, and environmental incident investigations, including root cause analysis and corrective actions.
- Provide advisory support on environmental management issues, including compliance, risk mitigation, and improvement initiatives.

February 2023 – September 2024

Quality, Health, Safety and Environment Assistant

*Mikayi Systems and Environment Consultants,
Mombasa*

Roles:

- Conducted Environmental Impact Assessments in line with EMCA and EIA Regulations.
- Conducted statutory audits, including NEMA compliance, Occupational Safety & Health, Fire Safety, Noise Measurement and Calibration, and Risk Assessment.
- Advised companies on strategies to minimize their environmental impact and ensure compliance with environmental regulations.
- Developed health and safety policies and procedures for companies.
- Provided training and education to employees on topics such as emergency response, hazard identification, safe work practices, and environmental awareness.
- Assisted companies in identifying and evaluating potential workplace hazards and developing strategies to minimize risk.
- Delivered first aid, fire safety, and occupational health and safety training for employees in various organizations

January 2022 – June 2024

CURRICULUM VITAE

Health, Safety and Environment field officer (part-time) |
Engineering Safety Consultants Ltd, Mombasa

Roles

- Conducting risk assessments
- Assisting in the development of safety policies, procedures, and guidelines.
- Conducting fire Safety audits
- Participating in environmental monitoring activities to assess compliance with regulatory requirements and identify opportunities for improvement.
- Conducting safety training programs for employees including first aid and fire safety training
- Writing health, safety and Environment Audit reports
- Noise Measurement and calibration
- Conducting Environmental Impact Assessment in line with EMCA and EIA Regulations
- Providing first aid, fire safety, and occupational health and safety trainings for employees in different organizations

Jan 2022 - To Date

St Johns Ambulance| Mombasa| Volunteer

Roles

- Regional coordinator for the special program within St Johns that incorporates persons with disabilities
- Providing first aid at public events like festivals, sporting events, and concerts.
- Community outreaches
- Setting up first aid stations, managing equipment, and coordinating with event organizers to ensure that everyone receives the care they need.
- First Aid training to junior volunteers
- First aid training to persons with disabilities particularly, the deaf community
- Sign language skills training to volunteers

August 2019 – November 2021

Techno Brain | Nairobi | Customer service Representative

Roles

- Advertised the company brand to potential customers
- Resolved customer complaints via phone, email, and social media with a 95% satisfaction rate

CURRICULUM VITAE

- Listened actively to handle client issues proficiently and professionally
- Educated clients on various service-related processes
- Increased customer retention by 15% through frontline customer service
- Handled billing-related queries and emails
- Pioneered the implementation of WhatsApp social platform to handle multiple clients from diverse countries, including Uganda, Tanzania and Kenya.

May-July 2019

Nairobi County government (Environmental Department) |
Environmental officer (Intern)

Roles

- Identified and planned environmental related activities
- Analyzed environmental matters and wrote reports
- Assessing environmental projects on the ground
- Supervised county workers while they cleaned and collected waste
- Recording environmental complaints from community residents
- Public awareness and educating the community on environmental conservation

Skills

Training, Dedicated team player, risk assessment, leadership, Organization skills, Fast Learner, Report writing, sign language, attention to detail, excel

Professional Qualifications & Certifications

- Safety Programs Trainer – First Aid, fire safety, OSH committee
- National Environmental Management Authority (NEMA) practicing associate expert Reg No. 13241

CURRICULUM VITAE

- NEBOSH IGC
- ISO 9001 Implementation
- ISO 9001 Internal Auditor
- Environmental & Social Governance (ESG)

Professional Bodies

- Workplace Safety Professionals Association of Kenya (WSPAK) – Membership No. 447
- Environment Institute of Kenya – Membership No. EIK/2/6488

Trainings

- Occupational Health and Safety | St Johns Ambulance, Mombasa
- Occupational First Aid | St Johns Ambulance, Mombasa
- Internet Governance and Data Protection | Kenya School of Internet Governance
- Leadership Program | Kenyatta University, Nairobi

Achievements

ISO 45001:2018 Implementation & Certification at Bulk storage Terminal Limited (Oil & gas terminal)

REFEREES

Mr. Edgar Eredi Muyesu

Managing Director, Mikayi Systems and Environment | Mombasa

Phone No: +254 724904217

Email: muyesuedgar@gmail.com

Mr. Gilbert Mariaka

Managing Director, Engineering Safety Consultants Ltd | Mombasa

Phone No: +254 725 410 936

Email: gilbert.mariaka@gmail.com

Mr. Derrick Bidali Munene

HSE Manager | Mr. Green Africa

Phone No: 0725753261

For the proposed Level 6 Hospital
by the Ministry of Health

CURRICULUM VITAE

Personal Information

Name: Sharon Kerubo Ondieki
Email: sharonkerubo52@gmail.com
Phone Number: +254 704 177 455

PROFESSIONAL SUMMARY

Highly skilled Quality Health Safety and Environment professional with a strong background in conducting risk and impact assessments and analysis to identify and solve complex safety and environmental issues. Strong knowledge of occupational health and safety regulations, industry best practices, and emerging trends. Possess excellent leadership, communication, and interpersonal skills to collaborate effectively with cross-functional teams and management. Experienced in conducting comprehensive risk assessments, developing safety policies and procedures, and delivering engaging training programs including first aid, fire safety and OSH committee.

Education

2024	NEBOSH International General Certificate Auditors Guild
December 2019	Bachelor of Environmental Science Second class honors (Upper Division), Kenyatta University, Nairobi
March 2015	Computer Packages Certificate, Microsoft Computer Programs, Distinction Loyal Computer Training College, Nakuru
2014	Kenya Certificate of Secondary Education Nyabururu Girls High School, Kisii
2010	Kenya Certificate of Primary Education Kisii Primary School, Kisii

Work Experience

May 2022 – To Date

Quality, Health, Safety and Environment Assistant
*Mikayi Systems and Environment Consultants,
Mombasa*

Roles:

- Conducting Environmental Impact Assessment in line with EMCA and EIA Regulations
- Conducting Statutory audits –NEMA, Occupational Safety

CURRICULUM VITAE

& Health, Fire Safety, Noise measurement and calibration
& Risk Assessment

- Advising companies on strategies to minimize their impact on the environment and comply with environmental regulations.
- Developing health and safety policies and procedures for companies
- Provide training and education to employees on topics such as emergency response, hazard identification, and safe work practices, environmental awareness
- Helping companies to identify and evaluate potential hazards in the workplace and develop strategies to minimize risk.
- Providing first aid, fire safety, and occupational health and safety trainings for employees in different organizations

January 2022 – To date

Health, Safety and Environment field officer (part-time) |
Engineering Safety Consultants Ltd, Mombasa

Roles

- Conducting risk assessments
- Assisting in the development of safety policies, procedures, and guidelines.
- Conducting fire Safety audits
- Participating in environmental monitoring activities to assess compliance with regulatory requirements and identify opportunities for improvement.
- Conducting safety training programs for employees including first aid and fire safety training
- Writing health, safety and Environment Audit reports
- Noise Measurement and calibration
- Conducting Environmental Impact Assessment in line with EMCA and EIA Regulations
- Providing first aid, fire safety, and occupational health and safety trainings for employees in different organizations

Jan 2022 - To Date

St Johns Ambulance| Mombasa| Part-time Volunteer

Roles

CURRICULUM VITAE

- Providing first aid at public events like festivals, sporting events, and concerts.
- Community outreaches
- Setting up first aid stations, managing equipment, and coordinating with event organizers to ensure that everyone receives the care they need.
- First Aid training to junior volunteers

August 2019 – November 2021

Techno Brain | Nairobi | *Customer service Representative*

Roles

- Advertised the company brand to potential customers
- Resolved customer complaints via phone, email, and social media with a 95% satisfaction rate
- Listened actively to handle client issues proficiently and professionally
- Educated clients on various service-related processes
- Increased customer retention by 15% through frontline customer service
- Handled billing-related queries and emails
- Pioneered the implementation of WhatsApp social platform to handle multiple clients from diverse countries, including Uganda, Tanzania and Kenya.

May-July 2019

Nairobi County government (Environmental Department) |
Environmental officer (Intern)

Roles

- Identified and planned environmental related activities
- Analyzed environmental matters and wrote reports
- Assessing environmental projects on the ground
- Supervised county workers while they cleaned and collected waste
- Recording environmental complaints from community

CURRICULUM VITAE

residents

- Public awareness and educating the community on environmental conservation

Skills

Training, Dedicated team player, risk assessment, leadership, Organizational skills, Fast Learner, Flexible, Report writing, sign language, attention to detail

Professional Qualifications

Safety Programs Trainer – First Aid, fire safety, OSH committee
National Environmental Management Authority (NEMA) practicing
associate expert Reg No. 13241
NEBOSH IGC

Professional Bodies

Workplace Safety Professionals Association of Kenya (WSPAK) – Membership No. 447
Environment Institute of Kenya – Membership No. EIK/2/6488

Trainings & Certifications

- Occupational Health and Safety | St Johns Ambulance, Mombasa
- Occupational First Aid | St Johns Ambulance, Mombasa
- Internet Governance and Data Protection | Kenya School of Internet Governance
- Leadership Program | Kenyatta University, Nairobi

REFEREES

Mr. Edgar Eredi Muyesu

Managing Director, Mikayi Systems and Environment | Mombasa

Phone No: +254 724904217

Email: muyesuedgar@gmail.com

CURRICULUM VITAE

Mr. Gilbert Mariaka

Managing Director, Engineering Safety Consultants Ltd| Mombasa

Phone No: +254 725 410 936

Email: gilbert.mariaka@gmail.com

Mr. Fred K. Khisa

Supervisor| Techno Brain Limited | Nairobi

Phone No: +254 706 616 413

Email: khisafred2012@gmail.com

CURRICULUM VITAE

PERSONAL DETAILS

NAME: OGWANG OGUDA LAWRENCE

AGE: 43 Years

NATIONALITY: Kenyan

MARITAL STATUS: Married

SEX: Male

RELIGION: Christian

LANGUAGES: Fluent in writing, reading and speaking English, Kiswahili and Luo.

CONTACTS

P.o. Box 2670 (30200), Kitale

Mobile Tel: 0720-236634, 0724468942.

E-mail: ogwangrence@yahoo.com, ogwanglawrence1@gmail.com

EDUCATION BACKGROUND

2002-2005: Kenya Wildlife Training Institute {KWSTI}
(Diploma in Environmental management). Pass-(CREDIT)

1998-2001: Immaculate Conception Mukuyu Secondary: Kenya
Certificate of Secondary Education (KCSE)

1997: Uriri Primary School: Kenya Certificate of Primary
Education (KCPE).

FIELD ATTACHMENTS

September-December 2004: Field attachment with National
Environment Management Authority (NEMA)

October- December 2005: Field attachment with the Kitale Municipal Council.

FIELD AND WORK EXPERIENCE.

April 2006-August 2008: Worked for National Environment Management Authority (NEMA) as a volunteer.

Duties and Responsibilities:

- Preparing of monthly and quarterly financial reports
- Field visits to environmental trouble spots and resolving environment related conflicts as well as participating in public barazas to create environmental awareness
- Issuance of noise, waste and effluent discharge licenses
- Carrying out environmental inspections to facilities within the county to ensure compliance with EMCA 1999 regulations.
- Reviewing of the Environmental Impact Assessment (EIA) reports.
- Visiting schools to create environmental education and awareness.
- A member of Trans-Nzoia stakeholder forum.
- Organizing for cleanup activities and World Environment Day celebrations at the District level.
- Attending the District Environment Committee (DEC) meeting and writing the minutes as well as representing the District Environment Officer (D.E.O) on various meetings or forums.
- Participated in National Environmental Policy Formulation forums.

August 2011 - Jan 2012: Worked with RIWE Consultants on Community Capacity Building on Natural resources management. (Bee keeping Component), through KAP Programme.

March 2012-2016: Works with Kenya Environmental Education Teachers Association KEETA as a Project Manager.

Duties and Responsibilities:

- Coordinating day-to-day implementation of project activities
- Implementing the recommendations of the Project Implementation Committee (PIC)
- Providing technical and administrative support to the PIC
- Supervising the implementation of various project activities
- Preparing both narrative and financial reports as per the Financing Agreement under the direction of the PIC and distribute them to the respective offices
- Providing secretarial services to PIC
- Preparing relevant project documents and reports for review and approval by the PIC
- Custodian of all project property and maintenance and accurate keeping of the project records.
- Facilitating, preparation and logistical arrangements for all project trainings
- Ensuring timely preparation and submission of work plans, financial and progress reports
- Conducting monitoring and evaluation jointly with the PIC and other partners to track project progress

April 2017- 2020:

Worked for Vi Agroforestry as a Field officer.

Duties and Responsibilities:

- Coordinate sensitization of farmers to form or join existing groups and group contracting
- Support cooperatives to recruit new members (farmers and their groups)

- Capacity build community facilitators on SALM, Dairy best practices and monitoring
- Train farmers through their groups on SALM and Improved dairy management
- Train farmers through their groups on agro-forestry practices for soil fertility, firewood and timber for construction among others.
- Train households on Households Road Map (HRM)
- Follow-up on implementation of Livelihood project activities at farmer and group level
- Carry out quality control and assurance of data collected by the cooperative
- Coordinate business hub capacity building trainings for the cooperative
- Coordinate service provider capacity building and engagement with the cooperative
- Monitor, collect data and report on business performance at cooperative level
- Prepare and Submit monthly reports to the cooperative management and Vi Agroforestry
- Promote women participation in project activities.

From August 2014.

Practised as an Environmental Impact and Audit Expert licensed with National Environmental Management Authority (NEMA)

Duties and Responsibilities:

- Conduct an Environmental Impact Assessment for undeveloped and ongoing projects.
- Carry out an Environmental Audits to ongoing projects.

Trained and Expertise on:

- Ecology,
- Biogeography,
- Environmental conservation and environmental management concepts,
- Earth physical environment and natural resources,
- populations dynamics and environment,
- Environmental Disasters\Hazards Management,
- Waste management, Natural resource management,
- Environmental management approaches, Ecotoxicology,
- Environmental management techniques, Safety and survival techniques,
- Introduction to quantitative methods and research methods,
- Environmental natural laws and conventions,
- Environmental restoration and rehabilitation,
- Environmental resources economics and entrepreneurship,
- Land use planning
- Environmental impact assessment & audits
- Urban and regional planning,
- Principles of management and administration,
- Financial and stores management, Science Technology and Environment and project and information management.

OTHER SKILLS

COMPUTER SKILLS

Proficient with the following computer programs

- Introduction to computer
- Ms windows
- Ms Word
- Ms Excel

- Ms access
- Ms power point
- Ms outlook Express
- Adobe page maker
- Key boarding.

RESEARCH SKILLS

- Design and implementation of field data from field experiments, environmental and ecology research, and community based projects.
- Field survey, data and sample collection and analysis, and evaluation of research techniques, laboratory techniques.
- Research proposal development and writing.
- Data analysis using the different statistical packages.
- GIS Application and project mapping.

CARRIERASPIRATIONS

-
- Expertise in Environmental and Natural Resource Management for food security, sustainable development and poverty alleviation.
 - Research in fields of Ecology, Environmental conservation and Natural resource economics and management.
 - Extension consultancy in areas of Forestry, Natural resource/ Environmental economics, Ecology, Biology and Sustainable management of resources.

HOBBIES

- Participation in environmental debates/workshops and conferences.
- Playing Basket Ball, swimming and playing chess.
- Travelling, making friends and reading novels.
- Listening to music, watching movies and watching football.

REFEREES

1. JEFFERSON SITATI
Chairman, Kiminini Dairy
Cooperative,
P.O. Box 2009-(30200) KITALE
TEL 0724875752

2. JASPER OMWENGA
County Director of Environment
NEMA, Trans Nzoia County,
P O. Box 99 (30200) KITALE.
TEL: 0721473901

3. JULIAS OGEA
Senior Curator,
Kitale Museums
P.O.Box 1219 -30200, KITALE.
Tel +254-30996, 0701260904

FOR PROPOSED LONDIANI & SICHEI BUNGOMA
LEVEL 6 HOSPITALS.



0724468942

FORM 5

(K.34/43)



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
CERTIFICATE OF REGISTRATION AS AN ENVIRONMENTAL IMPACT ASSESSMENT/
AUDIT EXPERT

Certificate No: NEMA/EIA/RC/372
Application Reference No: NEMA/EIA/ER/1416

This is to certify M/s **Lawrence Oguda Ogwang** of
P.O. BOX 2670 - 30200 Kitale (Address) has been registered as an Environmental
Impact Assessment Expert in accordance with the provisions of the Environmental Management and
Coordination Act and is authorized to practice in the capacity of a Lead Expert/Associate Expert/Firm of
Experts (Type) **Associate Expert**

Expert Registration No: **8187**
Issued Date : **6/20/2014**

FOR PROPOSED LONDANI & SICHETI BUNGOWN PROPOSED
LEVEL 6 HOSPITALS
0724468942

Signature
(Seal)

Director-General
The National Environmental Management Authority

P. T. O.



Ezekiel Olukohe – NEMA Lead Expert (Licence NEMA/ENVIS/EL/0906)

Curriculum vitae, signed 10 June 2026, and NEMA Experts Licence endorsed "For proposed Level 6 Hospitals by the Ministry of Health – Kenya" – 5 pages

CURRICULUM VITAE

Ezekiel Olukohe

P.O.Box. 16633 - 80100 Mombasa

Phone No: 0724-634 944

E-mail: olukohe2000@yahoo.com

Languages: English, Kiswahili, Luhya (Fluently spoken and written) and Luhya.

Date of Birth: 22nd August 1983 **Marital status:** Married **Nationality:** Kenyan

CAREER OBJECTIVE

To excel in the community empowerment sector, by building and enhancing the capacity of our people and institutions to pursue sustainable development.

In the short term, I am seeking consultant positions that will enable me to pursue on a day to day basis in auditing, training and/or implementation quality, environment and safety management systems.

EDUCATIONAL BACKGROUND

2012-2014: Mount Kenya University
Bsc. Environmental Health
Graduated with Second Class Honours

2003 -2006: Mombasa Polytechnic University College
Diploma Environmental Science

2007 : - Naivasha WordStar Environmental Organization
Approaches to Environmental Management and Conservation Techniques

Professional qualifications& knowledge
QUALITY, ENVIRONMENT, OCCUPATIONAL SAFETY HEALTH (QEOSH) CONSULTANT
GLOBAL E.H.S CONSULTING

RESPONSIBILITIES

1. Conducting environmental impact assessment and environmental audits in pursuant to the legal requirements of Environmental Management & Coordination Act 1999 (Kenya) for various farms and industries(see attached list of EIAs/Audits conducted)
2. Organize and participate in Health Safety Committee, First Aid& Fire Safety Trainings for clients.
3. In charge of day to day running of the company

Achievements: Key team member in placing the market share of the consultancy to a highly recognizable level. Gained conversancy and expertise in the EIA/Audit process and strengthened facilitative and people relation skills as a trainer in Occupational Health & Safety.

National Environment Management Authority (NEMA):

Registered as Environmental Impact Assessment Lead Expert.

Computer Skills

Proficiency in:

- ❖ MS word
- ❖ MS excel
- ❖ MS Powerpoint
- ❖ MS Access
- ❖ Internet use and applications

WORK AND PROFESSIONAL EXPERIENCE

SEPTEMBER 2008

Global E.H.S Consulting

Technical Officer, Environmental Impact Assessment/Audit

- ❖ Conducting environmental impact assessment and environmental audits in pursuant to the legal requirements of Environmental Management & Coordination Act 1999 (Kenya) for various farms and industries
- ❖ Organize and participate in Health Safety Committee, First Aid & Fire Safety Trainings for clients.
- ❖ In charge of day to day Mombasa area operations of the firm
- ❖ Collecting and collating data relevant to the study as part a team constituted to conduct environmental audits

Achievements: Gained conversancy and expertise in the EIA/Audit process, strengthened facilitative and people relation skills as a trainer in occupational safety, first aid and fire safety

Nov 2005 August 2007: VI – AGROFORESTRY CENTRE KISUMU

Position: Project Officer

RESPONSIBILITIES

- ❖ Coordinating day to day operational aspects of the project and staff in the Upper Nzoia basin
- ❖ Building partnerships with both the private and public sector to fundraise for development projects
- ❖ Providing technical and administrative support to the Project Implementing Committee
- ❖ Preparing narrative and financial reports
- ❖ Facilitating timely preparations and logistical arrangements for all project trainings
- ❖ Monitoring and evaluation of project progress jointly with other partners Creating and executing project work plans and revising them as appropriate to meet changing needs/ requirements
- ❖ Providing technical support to the implementing community groups

Achievements: Acquired project management skills, partnership building, community mobilization, reporting & donor compliance requirement

EXTRA CURRICULUM ACTIVITIES

2004-2005: Member of Youth Wildlife Environmental Movement (YWEM)
Mombasa Polytechnic

2006: Wildlife Club, Mombasa Polytechnic University College

ACTIVITIES

- ❖ Tree planting activities
- ❖ Clean up exercises
- ❖ Animal census

ACHIEVEMENTS: Acquired voluntary service and teamwork experience

HOBBIES

- ❖ Traveling
- ❖ Participating in voluntary activities/ community service
- ❖ Reading

REFEREES

Mr. Fred Marani
Project Manager, VI
GROFORESTRY,
Mail: yabwibo@yahoo.com

James macharia
Chairman
Environment & Health
Sciences Department,
Mombasa Polytechnic
University College
Email: mwamita@yahoo.com

Godfrey Wabwile Wafula
Provincial Environment Officer,
National Environment Management
Authority
P. O. Box 87400-80100
Mobile: +254 734235574
EMAIL: gwafula@yahoo.com



Date: 10th June, 2026

[Signature of the staff Member]

Full name of staff member: _____ EZEKIEL OLUKOHE _____

Full name of authorized representative: _____ EZEKIEL OLUKOHE _____



nema
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

ENVIRONMENT MANAGEMENT AND COORDINATION ACT, Cap 387

Experts License - Associate/Lead Experts

License No.:

NEMA/ENVIS/EL/0906

Application Reference No:

NEMA/ENVIS/ELA/05462

M/S EZEKIEL OLUKHOE

(individual or firm) of (address) **P.O.BOX 42588, 80100, Mombasa GPO**

is licensed to practice in the capacity of a **Lead Expert** registration number **NEMA/ENVIS/EL/0906** in accordance with the provision of the Environmental Management and Coordination Act cap 387.

Issued Date: **5th February 2026**

Expiry Date: **31st December 2026**

*FOR PROPOSED LEVEL 6 HOSPITAL
BY THE MINISTRY OF HEALTH KENYA*

06/06/2026

Robert Orina

For DIRECTOR GENERAL

National Environment Management Authority

P.T.O.



ISO 9001 : 2015 Certified

Martha Akinyi – Registered Environmental Impact Assessment and Audit Expert

Curriculum vitae – 5 pages

MARTHA AKINYI
Environmental professional, expert in Climate
change, Environmental Impact Assessment
/Environmental Audit
P.O. Box 66296-00800 Nairobi
Marthaomondi447@gmail.com
+254 759966078

PROFILE

A highly motivated young environmental professional with strengths in climate change, sustainable natural resources management, and environmental and social safeguards. She holds a Bachelor of Science degree in Natural Resource Management from the University of Eldoret.

I have experience working on aquatic ecosystem inventory, watershed and riparian zone protection, pollution prevention, and stakeholder coordination involving government agencies, NGOs, private sector actors, and communities. Demonstrated ability in data collection, environmental reporting, development of management plans, and implementation of national and international environmental frameworks.

On sustainable natural resources management, I have been involved in Programmes in biodiversity conservation, and especially community-based interventions. I'm a strong advocate of natant - based solutions in addressing biodiversity loss and climate challenges, and community participation in conservation as custodians of biodiversity and natural resources.

As a champion of sustainability, I am well versed with policies and procedures for identification, assessment, and management of environmental and social risks in projects to ensure development is economically, socially, and ecologically sustainable I'm registered environmental impact assessment and audit expert with the National Environment Management Authority in good standing.

In the course of my career, I have acquired valuable skills in project management, stakeholder engagement, research, report writing, facilitating community initiatives, public communication and organizing and managing meetings and workshops.

EXPERIENCE

Dec 2023 – to date **Part time Consultant EVEREST MAVEN GROUP LTD**

- Assisting in the writing of Environmental Impact Assessment and Audit Reports.
- Organizing and conducting public participation with the project affected persons and stakeholders.
- Conducted field assessments of proposed projects to collect biophysical and socio-environmental data.
- Carried out environmental monitoring and audits of facilities to assess compliance and recommend corrective measures.
- Conducted environmental research to support ecosystem protection, pollution prevention, and sustainable development.

Jan 2024 – Jan 2025 **Water Resource Authority Intern**

- Identifying and implementing adaptive solutions to water shortages tailored to, local livelihoods and communities across the country.
- Monitored inland freshwater resources including rivers, springs, and riparian zones to support sustainable water resource management.
- Conducted inventory and assessments of water-related ecosystems to inform conservation

and pollution control measures.

- Supported watershed management and protection of riverine and riparian ecosystems.
- Supported project monitoring and evaluation systems to track ecosystem resilience and climate adaptation outcomes.
- Establishing and maintaining conservation agriculture and dryland farming demonstration sites, delivering training sessions to community members.
- Supporting women and youth civil society organizations in advocating for local climate change solutions.
- Developing learning materials on sustainable, scalable strategies for green growth, dryland farming, and business resilience.
- Leading initiatives to protect springs, riverine, and riparian zones, and supported watershed management.
- Conducting community consultations and assessments to identify adaptive livelihood solutions.
- Drafting project proposals and concept notes to secure funding for livelihoods and climate resilience initiatives.
- Representing the organization in national-level working groups, interagency workshops, and communities of practice.

March 2022-
Jan 2024

**National Environment Management Authority
Intern- Adaptation Funds and Green Climate Funds Programs**

- Planned, coordinated, and implemented climate change adaptation projects and initiatives. This includes overseeing project lifecycles, tracking completion against critical paths, and ensuring adherence to environmental standards.
- Provided technical expertise and guidance on climate change adaptation measures. I conducted assessments to identify climate risks and vulnerabilities, trained stakeholders, and communities on adaptation options, and monitored the effectiveness of interventions for continuous improvement.
- Forged strong relationships and facilitated participatory planning with internal and external stakeholders. I have successfully led community engagement and liaison and overseen awareness and training sessions on adaptation interventions.
- Maintained meticulous documentation and data management systems.
- Participated in the designing and implementation of programs that build resiliency and adaptive capacity of communities to climate change impacts
- Participated in monitoring and preparing project monitoring reports for internal use as well as donors
- Participated in meetings and workshops on Climate change mitigation and adaptation.
- Ensured all the activities funded by the Adaptation Fund programme adhere the environmental and social policy, as well as gender policy
- Participated in development of concepts and project proposals for funding by development partners
- Engaged and provided support to project partners

Dec 2020 -
Dec 2021

**Kenya Forest Service
Attachment – Ceng'alo Forest Station**

- Conduct research on indigenous species (olea Africana) on the field.
- Survey and demarcating land for planting of trees on the field.
- Inventory and data collection of forest resources.
- Report writing on the nursery activities, field activities, siculture, weather experience.

Achievements

- Spearheaded community initiatives that improved water management and enhanced climate resilience.
- Established functional conservation agriculture sites, benefiting over 200 community members.
- Supported the development of grassroots economic groups, increasing financial inclusion and stability
- Strengthened community participation in wetland and water resource conservation initiatives.
- Contributed to monitoring and protection of freshwater and riparian ecosystems across multiple counties.

EDUCATION

DEC 2019	UNIVERSITY OF ELDORET	Bachelors of Science Degree in Natural Resource Management
JAN 2015	EMMANUEL COMPUTER COLLEGE	Certificate in Computer Package
NOV 2015	ST THERESA EREGI GIRLS	Kenya Certificate of Secondary Education

SKILLS

- Climate Change Adaptation and Resilience
- Water Resource Management
- Conservation Agriculture and Dryland Farming
- Community Engagement and Capacity Building
- Biodiversity Conservation
- Renewable Energy Solutions
- Project Monitoring and Evaluation
- Policy Development and Advocacy
- Administrative Support
- Microsoft Office Suite Excel, Word, SharePoint
- Problem-Solving

Referees

John Wafula
National Environmental Management Authority
Head of Programmes-Adaption Funds/ Green
Climate Funds Programme
0721412828
jswafula@gmail.com

Eddy Okello
Lead Expert
Everest Marven Group
LTD 0712503327
okelloedu@gmail.com

Dorine Wairimu Ng'ang'a
Water Resource
Authority Human
Resource 0728535209
doreenwairimux@gmail.com

APPENDIX 4: LAND OWNERSHIP DOCUMENTATION

This appendix reproduces the title documents for the project site. The land was donated by the Kenya Medical Training College, Sichei Campus. The original parcel L.R No. Bokoli/Chwele 2458 has been partitioned and titles issued by the Bungoma Land Registry on 7 May 2026: Title No. Bokoli/Chwele/6119, approximately 7.141 hectares, and Title No. Bokoli/Chwele/6120, approximately 3.66 hectares – together approximately 10.8 hectares, or approximately 26.7 acres, comprising the land held for the project to date. Both titles are absolute and the encumbrances section of the register is blank for each parcel, confirming that no encumbrance, charge or adverse claim is recorded against the land. Title documents for the balance of the land contemplated by the Feasibility Study Report are under preparation and will be appended on issue.

Form LRA 21 (r. 31(2))

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

Serial Number **039010008677**


THE REPUBLIC OF KENYA

Certificate of Title

TITLE NO. **BOKOLI/CHWELE/6119**

AREA **(7.141)** HA (APPROXIMATE)

BUNGOMA

This is to certify that **TEACHING & REFERRAL HOSPITAL**

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and search of the overriding interests set out in section 28 of the Land Registration Act as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the
BUNGOMA Land Registry

this **7TH** day of **MAY** 20 **26**

Registrar
Name..... Stamp No.....
Signature 



Certificate of Title No. Bokoli/Chwele/6119, Serial No. 039010008677, approximately 7.141 hectares, registered to Bungoma Teaching and Referral Hospital, issued by the Bungoma Land Registry on 7 May 2026.

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

Serial Number **039010008676**

THE REPUBLIC OF KENYA

Certificate of TitleTITLE NO. **BOKOLI/CHWELE/6120**AREA **(3.66)** HA (APPROXIMATE)This is to certify that **KMTC-SICHEI CAMPUS**

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and search of the overriding interests set out in section 28 of the Land Registration Act as may for the time being subsist and affect the land.



GIVEN under my hand and the seal of the

BUNGOMA Land Registrythis **7TH** day of **MAY**, 20 **26****Registrar**

Name Stamp No.

Signature 

Certificate of Title No. Bokoli/Chwele/6120, Serial No. 039010008676, approximately 3.66 hectares, registered to KMTC – Sichei Campus, issued by the Bungoma Land Registry on 7 May 2026.

Register extract – Part C Encumbrances Section, which is blank, confirming that no encumbrance is registered against the land.

APPENDIX 5: GRIEVANCE REDRESS MANAGEMENT PLAN

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

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

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

- a. Complaints will be sent to the GRM focal point at the workplace by email, text, phone, letter or in person. The complaints will be collated onto a complaints form and logged into the register (and reported). The email addresses and phone number will be made available to the workers at signing the contract/recruitment.
- b. Complaints will be reviewed by the PMT weekly upon receipt. The grievance committee at the workplace will comprise of the in-charge (health superintendent or contractors (who will be the chair), GRM focal point will act as the secretary, and departmental heads. The team will review the complaints and provide guidance on the course of action and ensure follow-up on previous complaints. Any preliminary investigation should take place within 5 working days of the committee meeting. Feedback will be given to the complainant within 10 working days.
- c. For informal complaints i.e. those raised through social media, print media or not formally lodged, the committee will be deliberate upon them to decide whether to investigate based on the substance and potential impact/reputational risk.
- d. If the complaint is referred to the main project GRM and government's legal complaints structures (EACC, CAJ, etc.), the African Development Bank will be notified.
- e. Complaints regarding SEA will be kept confidential, the name of the complainant will not be recorded, only the age and gender of the complainant, and whether a project worker was involved and should be sent directly to the PM who should immediately inform the African Development Bank.
- f. No disciplinary or legal action will be taken against anyone raising a complaint in good faith.
- g. A monthly report of complaints resolution should be provided to the PMT and the African Development Bank.

APPENDIX 6: PUBLIC PARTICIPATION RECORDS/ MINUTES

PUBLIC PARTICIPATION MEETING MINUTES FOR BUNGOMA LEVEL VI TEACHING AND REFERRAL HOSPITAL ON PLOT L.R NO. BOKOLI/CHWELE 2458 IN SICHEI VILLAGE (NEXT TO CHWELE KENYA MEDICAL TRAINING COLLEGE) KABUCHAI SUB-COUNTY, BUNGOMA.

DATE: 15/04/2026

VENUE: PROPOSED PROJECT SITE

IN ATTENDANCE:

- Youths
- Women
- Men
- The Elderly
- People who are physically challenged
- County Official
- National Government Officials
- Local Administration
- Media
- Religious Leaders
- Other Stakeholders.
- NEMA Experts.

N/B List of attendance attached in the annex.

AGENDA:

- Introduction and presentation by project proponent/representative
- Project Description and Impacts by NEMA Lead Expert.
- Public views and Concerns
- Any other Business

MIN 1/15/04/2026: INTRODUCTION AND PRESENTATION BY PROJECT PROPONENT.

The meeting started at 1113 HRS by prayer from a volunteer. The area assistant chief, who was the master of ceremony, welcomed participants to the meeting and informed them that the meeting was

aimed at having views of the local community for the proposed level 6 hospital development by the National Government through the Ministry of Health, State department of medical services . He welcomed all stakeholders present in the meeting. He welcomed the Area Chief- Stephen Nakitare for his remarks. Area Chief in his opening remarks, welcomed all participants and acknowledged presence of County Government Officials, Local administration and NEMA Experts. The Area chief welcomed Micah Nyairo, County Public Health, Bungoma County for his remarks as the Proponent representative and to also to invite NEMA experts.

In his brief, Micah Nyairo welcomed members to the meeting. He informed participants that Chief Officer of health was to attend the public participation meeting but due to his tight schedule, sent his greetings and apology and blessed the public participation exercise. He informed participants that prior to this meeting, County Officials including the Governor have visited the site and identified the proposed site as suitable for the proposed level 6 Referral Hospital. He emphasized that Public Participation was a legal requirement for approval of the proposed project at both county and National level. He emphasized that this project will go a long way to assist the local communities in Bungoma and neighbouring Counties. After his remarks, he welcomed the NEMA Experts to introduce themselves and give further direction on the public participation.

MIN 2/15/04/2026: PROJECT DESCRIPTION AND IMPACTS BY NEMA LEAD EXPERT.

Mr. Edgar Eredi- NEMA Lead Expert and Lawrence Ogwang introduced themselves. Edgar welcomed participants to the meeting and highlighted that it is a constitutional requirement for any project to be subjected to a public participation. He informed participants on an elaborate design for the proposed level 6 hospital, which will have modern health facilities and use of new technologies. He emphasized that the proposed project would have numerous anticipated positive impacts but not limited to the following;

1. Provision of specialized health care
2. Teaching and referrals services
3. Community benefits such as improved infrastructure
4. Increased Land value
5. Local community empowerment through CSRs and community health promotions
6. Employment of locals both during construction and operational phases
7. Room for area business expansion due to supporting services required for a Level 6 hospital

Anticipated negative Impacts and their mitigation measures.

1. Waste generation in the hospital some of which is hazardous in nature and the mitigations
2. Water and energy extraction from the environment. Sustainable energy and water components were highlighted.
3. Dust pollution and noise and their mitigations during construction
4. Potential accidents during construction and operation and their respective measure s
5. Increase in traffic and the respective mitigation measures including provision of adequate parking and having two access roads to the hospital.

He then requested residents' presence to share their views in a plenary session moderated by the Area assistant Chief.

PUBLIC VIEWS AND CONCERNS.

The Master of Ceremony welcomed participants in specific categorization as follows:

Religious/Church leaders

- Noah Wanjala Misiko one of the Church leaders welcomed the project and highlighted numerous benefits associated with the proposed level 6 hospital.
- Johnstone Koyu also a church leader emphasized that this project as much as it will improve the health status of the community, it will also improve the economy of the area and the local communities.
- Henry Nabiswo informed participants that he has no objection because it is at the right time the project is being implemented and the community will greatly benefit.
- Jacob Wanyonyi welcomed the project and suggested that it could have come early as the community have really suffered over time in term of access to quality health services.
- Fred Wekesa welcomed the project and encouraged community members to have skill because the project will bring numerous jobs and will also improve the development of the area.

The Elderly Persons

Jackson Maloba emphasized that the government has done justice to the people by bringing this project. He thanked the president and the Speaker of National assembly for their efforts to ensure success for this project. He gave a brief history how difficult it has been to seek referral health in other regions during his lifetime.

Makokha informed participants that during his childhood up to now, he has never heard of such a massive development plan. They used to go to Lugulu for treatment because there was no any better health facility around. He narrated how his father died of liver cancer due to lack of resources to access specialized health care , noting that this would be a thing of the past.

Situma Wamurunya informed participants how he has been happy about this public participation exercise as it was long overdue. He highlighted that the proposed project will create jobs and numerous benefits and has no objection to it and should be implemented.

Daniel Wekiti informed participants that he welcomed the proposed project and that he has been waiting for the implementation for a long time and thanked the Government for the initiative. He requested that the locals should be given first priorities such as Doctors and ICT. He was hopeful that this proposed project will lead to great development.

Lawrence Wachie thanked the Speaker National Assembly for initiating this project and this is due to his strong and good relationship with the Government. He emphasised that youths to be given first priority when it comes to work.

Persons with disability

Emmanuel Nyongesa informed participants that he was not born disabled but through polio, he became disabled. He informed residents that his parents could not access specialized services at that time. He thanked the Government for the initiative as it will benefit people who are living with disability.

David Simiyu requested that the roads should be fitted with street lights to enhance security during the night.

Women Representative

Roseline Masika thanked the Government for this project. She acknowledged that this project will assist the local community for Specialized Health Services.

Salome Makokha informed participants that many locals have been transferred for Specialised services but due to lack of money many end up dead.

Celestine Wafula welcomed the project and highlighted that it will address issues of lack of employment and it will also promote her banana business near the hospital.

Christine Wanjala explained that the proposed project once complete will improve businesses and create employment of people especially those with little education. She requested the government to provide bursary to enable families teach their children and later get employment at the facility.

Youth Representatives

Constant Wanjala who is a youth and also Representative of *Boda-boda* (local motorcycle transport service providers) highlighted that the location of the project is suitable. He emphasized the jobs should be given to the local youths in the project area.

Philip Kundu one of the youths, encouraged youths to be on the forefront during the implementation. He emphasized that youths should be given contracts during the Project implementation and operation. He argued Youth to register companies for the purpose of benefiting to the project

Media Groups

Wanjala Sanduku from Sulwe Shabiki media, highlighted that the proposed level 6 hospital is centrally located and will benefit all. He requested that roads to the project site should be tarmacked for ease access to the project site.

Gemshon Chesikaki- Chairperson Sichei Market welcomed the project and highlighted that new businesses will come affect rent. He requested that board members to be drawn from the local community to ensure issues are addressed from the community. He recommended the proposed project.

Ham Masibo welcomed the project. He thanked the Speaker and the National government. He acknowledged that the community has already benefited due to increase value land in Sichei and hope that the value of land to even go higher once the project is complete and is operational.

Zachariah Kimalewa welcomed the project because of the numerous benefit the project will have to the community. He highlighted that the benefits of the recently built and now in operation Sichei dispensary, which in a small way mirrors the huge benefits from the proposed level 6.

Eliud Kisasati who represented Geoffrey Muimumbu Chair of the Sichei Health Centre, thanked. He informed members that the dispensary was opened by the governor and should be preserved for use even after completion of the proposed project to help those in need and have no financial capability to go to the referral hospital. He urged the management of the hospital to ensure limited corruption.

Remarks from Area Chief.

Area Chief informed members that today was a day for public views to determine whether the community want the project or not. He requested the hospital to be renamed after Walumoli who championed for the construction of this project before his demise. He highlighted the project will serve people from all over the region including Uganda and bring development in the area. He requested that those who sold their land at a cheaper price should not by any chance demand for more money due to the fact the land value has increased due to the proposed project. After his remarks welcomed Hellam Murunga Makokha who was among the previous owners of the proposed land, welcomed the proposed project and highlighted the benefits the proposed hospital will bring to the community.

Area Chief introduced all the village elders present. He welcomed the assistant chief who welcomed the proposed project.

Isaac Musungu Sichei Dispensary doctor welcomed the initiative.

Joel Barasa, Deputy Principal Chwele KMTC supported the proposed project because of the following reasons;

- Nursing students at their college were currently in Kakamega for their referral teaching. The proposed project will bridge the gap so that students access referral teaching near the facility.
- The proposed project will promote high education as students will be motivated to pursue higher education levels.
- The facility will improve health service delivery as modern health equipment and latest technologies will be used.

- Increased local employment as the project will provide approximately 2,000 employees.
- Enhanced development such as real estate's due to influx in population from referral workers and patients.

Remarks from retired chiefs.

Edwin Wanjala, Retired Senior Chief requested that the hospital be named Walumoli Referral and Memorial hospital. He acknowledged that the project will bring massive development in the area. He thanked the Speaker through friends in funding the proposed project.

John Wanjala also retired Chief agreed that the project to be implemented and thanked participants for their participation and in support project.

Area Chief thanked all the retired Chiefs for their Remarks and welcomed Tabitha Mulunge, Village administrator for her remarks.

Remarks from Village, Ward and Sub County Administrators.

Tabitha thanked participants for their participation in the exercise. She welcomed Ward Administrator.

Ward administrator Violet Mauka, highlighted the health benefit associated with the construction of the level 6 referral hospital. She introduced all health workers and Agripreneurs present in the meeting. She welcomed Sub County Administrator for her remarks.

Sub County Administrator- Jane Kusienya thanked Participants for accepting the project. She highlighted that the project will lead numerous infrastructural improvements such as street lights, tarmac roads, store buildings and other benefits. She highlighted that the hospital will also attract patients from other regions. She thanked participants for their massive attendance.

Area Chief Informed Participants that their views were important and will be beneficial in determining approval of this project. He welcomed EIA Lead Expert- Edgar Muyesu for response and final remarks.

By show of hands all present it was unanimously agreed that the proposed project should be implemented. The lead expert thanked participants for their presence highlighting that no one was

paid to attend the meeting and their attendance were out of their own willingness. He thanked the area Chief for the mobilization which made the public participation exercise a success.

Area Chief welcomed one of the Community Health Volunteers who gave a vote of thanks.

Key Conclusion:

Majority in attendance supported the p

MIN 3/ 15/04/2026: Any other Business (AOB).

Since there was no other business, Area Chief- Stephen Nakitare requested for a National Anthem and the meeting was adjourned at 1341 HRS with a word of prayer from a spiritual leader - Luca Wanyonyi.

CONFIRMATION OF MINUTES AS A TRUE REFLECTION OF THE PROCEEDINGS

Prepared by EIA Lead Expert.

Name: Edgar Eredi Muyesu

Expert No. 1921.

Date:.....26/4/2026.....Signature: 

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CONFIRMATION OF MINUTES AS A TRUE REFLECTION OF THE PROCEEDINGS

Prepared by EIA Lead Expert.

Name: Edgar Eredi Muyesu

Expert No. 1921.

Date:..... Signature:.....

Endorsed by Area Chief Sichei Location,

Name: Stephen Nakitare.

Date:..... Signature:.....

Official Stamp



PHOTO GALLERY



Photo 1: A section of residents who attended the meeting



Photo 2: A representative of PWD giving his remarks



Photo 3: The elderly also presented their views



Photo 4: Village managers(mkasa)were instrumental in mobilization

ATTENDANCE RECORD

Record

Environmental Impact Assessment Public Participation Attendance

Proponent: **STATE DEPARTMENT OF MEDICAL SERVICES**
 Project: **PROPOSED BUNGOMA LEVEL (VI) TEACHING AND REFERRAL HOSPITAL ON PLOT NO. LR BOKOLU/CHWELE/2458 IN BUNGOMA COUNTY**
 Dates: **15-04-2026**
 Venue: **MTF - SICHEI**
 NEMA EIA Lead Expert: **Edgar Eredi (NEMA Reg 1921)** Signature: *[Signature]* Date: **15/4/2026**
 Proponent Rep: Signature: *[Signature]* Date: **15/4/2026**

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	DAVID SAKUJO	36421323	0758766740	<i>[Signature]</i>
02	David Mwangi Masika	30288142	0748751655	<i>[Signature]</i>
03	KINEI BUSALO	07886119	0792158702	<i>[Signature]</i>
04	Rosemary masika	1848347	0717769886	<i>[Signature]</i>
05	IRABE SAKUJO	24253251	0798718054	<i>[Signature]</i>
06	CATHERINE LUNYELUKWA		0700573268	<i>[Signature]</i>
07	TOM W. SLEIMANI	11031769	0742956445	<i>[Signature]</i>
08	Judith Njoroge	31515614	0797750046	<i>[Signature]</i>
09	FRED S. MURUGA	05277625	0793357484	<i>[Signature]</i>
10	ROSE BARANABA		0707429825	<i>[Signature]</i>
11	Edwin Munko	40214919	0757046398	<i>[Signature]</i>
12	Patrick S. Samuani	2089224	0758990884	<i>[Signature]</i>
13	Michael P. Nanyala	0584513	0740076956	<i>[Signature]</i>
14	Alien Samuani	11974544	0721557441	<i>[Signature]</i>
15	Isabel N. Njoroge	8007034	0793891284	<i>[Signature]</i>
16	Henny Nobani	20518402	0703601022	<i>[Signature]</i>
17	GETA HANQUAN	25920609	0792685510	<i>[Signature]</i>
18	Joselyn W. Mwangi	27842586	0702283084	<i>[Signature]</i>
19	EVANSO CHWELI	30847683	0769795975	<i>[Signature]</i>
20	Dominicus M. Sika	27257401	0769795975	<i>[Signature]</i>

Record

Environmental Impact Assessment Public Participation Attendance

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 NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg. 1921)
 Proponent Rep: Signature: Date: 15/4/2026

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	Isaac Lumas mukwani	13158071	0744625505	Isaac
02	Dace BARASA	27025537	0716586215	Dace
03	Aduma WASEWE	2078400	0725392864	Aduma
04	Richard M. Akel	3039504	0720042962	Richard
05	Aduma WASEWE		07140556639	Aduma
06	Eduma Duma M. Akel	3710016	0727508969	Eduma
07	CARO SIMUJU	36707002	0714601436	CARO
08	MURIEL MUKOGE	26894241	0715216919	MURIEL
09	EVERALINE TEIGESA	20090849	0702166277	EVERALINE
10	MARY WAMPALIMBA	4358590	0742710185	MARY
11	AKIC SIMUJU	2089372	-	AKIC
12	FRANCIS MAKHITHIO	2088642	0795877203	FRANCIS
13	VICTORIA WABAHAGAH	5006948	0715283304	VICTORIA
14	PHILIS NYONGESA	34345609	0790833339	PHILIS
15	EVERLYN N. MUGULA	12939445	0702399646	EVERLYN
16	DUTH MAFULU	41661543	0794937342	DUTH
17	JACK NAMBWE	2086974	0759296256	JACK
18	JOAN N	35198009	0769317009	JOAN
19	Beyene W. MARIKO	1315173	0746003248	Beyene
20				

Environmental Impact Assessment Public Participation Attendance

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Dates: 15-04-2026

Venue: MTC - SICHETI

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature: *[Signature]* Date: 15-04-2026

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	Ham Masibe	9996262	0715906335	<i>[Signature]</i>
02	CHARLES Juma	2086551	0711425733	<i>[Signature]</i>
03	JACKSON WAKUBI	22013864	0794954368	<i>[Signature]</i>
04	JACKSON WAKUBI	26667069	0705893181	<i>[Signature]</i>
05	CLARE WAKUBI	20473683	0795826434	<i>[Signature]</i>
06	MACEY WAKUBI	34850300	0114800663	<i>[Signature]</i>
07	Salome SIKUKU	36377680	0146536380	<i>[Signature]</i>
08	MAODAKHE WAKUBI	4853413	0796227928	<i>[Signature]</i>
09	AGNES K. WEKESA	13313168	0703190141	<i>[Signature]</i>
10	ENDERLINE NUNGU	31946976	0708930790	<i>[Signature]</i>
11	BRUNO MURANGA	30507945	0703121827	<i>[Signature]</i>
12	AUGUSTIN MURANGA	31467676	0701017169	<i>[Signature]</i>
13	KILBER WAKUBI	2087811	0708213518	<i>[Signature]</i>
14	David BARASA	8012810	0706725213	<i>[Signature]</i>
15	Richard KITU	23885965	0797112050	<i>[Signature]</i>
16	Eunice Lutuli	10474767	0714466469	<i>[Signature]</i>
17	Lydia Kisiangani	30593906	0201084411	<i>[Signature]</i>
18	Pose Walelo	28742391	0715490876	<i>[Signature]</i>
19	Isaac Mwangi			<i>[Signature]</i>
20				

ASSISTANT CHIEF
 SICHETI SUB LOCATION
 BUNGOMA CENTRAL

Environmental Impact Assessment Public Participation Attendance

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Proponent: STATE DEPARTMENT OF MEDICAL SERVICES
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Venue: MTC SICHHEI

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature:  Date: 15-04-2026

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	PATRIQUE WAKESHA	13425395	0710306124	
02	ANNEBOLE BARASA	35473008	0716301219	
03	MICHAEL NJUMALO	6504532	0746311932	
04	MACE SINTU	27025849	0799354476	
05	BETTY BUSILO	9358182	0704531651	
06	DAVIDA NAFUNA	30507894	0769889770	
07	AGAREY MALABA	11562889	0792839541	
08	MATHEW NYONGEITA	8092953	0716785374	
09	JOSHUA KUNDU	10036073	0721493085	
10	CECILE SITHIYA	26114337	0713442964	
11	BERNARD WAFULU	1591532	0114729619	
12	NOAH MAMUSHALA	23311828	0713012858	
13	ROBERT SIKHAT	21204463	0712904030	
14	DELLICK ZAKARIA	421439993	0795384773	
15	ANDREW WAKESA	338195820	0745454730	
16	ISAAC WENJALA	37990605	0740574753	
17	ALVIN MABISWA	24500332	0116534613	
18	MARINA WAFUNA	38209181	0796990187	
19	ANNA NYUKURU	26571324	0701634554	
20	DEBORAH PICHATI	70885555	0706789219	

Record

Environmental Impact Assessment Public Participation Attendance

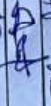
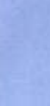
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NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature:  Date: 15-04-2026

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	PAULINE UDESSA	13455395	0712306121	
02	ANNEBIE BAKASA	25473006	0716301219	
03	MICHAEL MUNDALO	6504532	0746311932	
04	MASES SIMIYO	29025849	0799354476	
05	BETTY BUSILO	9358182	0704531651	
06	DAVIDA NAFUMA	30507894	0469889770	
07	AGAREY MALABA	11562889	0792839541	
08	MATHEW NUYONKESIA	8012953	6116785374	
09	Isaiah KUNDU	10036073	0721428085	
10	CECELIA SITHYU	26114337	0713442964	
11	REABICE WAFULS	7597532	014709619	
12	NORT MANGALHA	23311828	0713012858	
13	Rebecca SIKHAT	21264463	0729910770	
14	DEBICA ZAKARIA	42439993	0795284773	
15	ANDREW NUKESA	638195820	0245454730	
16	Isaac WANGALA	37990603	0740574753	
17	ANNAH NABISWA	24500392	0116574613	
18	Malaba MACHUMBA	28209181	079690187	
19	ANNAH NYUKORI	26571324	0701634554	
20	NABIGUS PICHATI	70885555	0766789219	

ASSISTANT CHIEF
SICHHE SUB LOCATION
BUNGOMA CENTRAL

Record

Environmental Impact Assessment Public Participation Attendance

Proponent: STATE DEPARTMENT OF MEDICAL SERVICES

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Venue: MTC - SICHU

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature:

Date: 15-04-2026

Signature:

Date:

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	Edick W. SAKURU	78329996	0702283985	
02	JOHN S. MATHIAS	20507535	011957133	
03	MANTIN MAMMAWA	7442156	0710374887	
04	Leah SICHU	6475022	0717164128	
05	KENNEDY N. SAMUEL	6462348	0718880829	
06	MILKAH V. MATOKTH	21350086	0744507939	
07	JOHN SICHU	9896875	0706161345	
08	Glady's H. Wanyonyi	27148176	07988247546	
09	Rose W. Nsamulika	2081904	0708512329	
10	Jane Njoroge	79723015	0719071626	
11	Susy Muriungi	2089763	0760318497	
12	Amara A. Mwangi	5640713	0714341336	
13	KENNEDY SIMIYU	12849300	0723991122	
14	STEPHEN OPICHO	31373979	0708905608	
15	Cherphos Njiru	8318622	078318074822835	
16	Elud. Wanyonyi	0738070	0764674750	
17	SAMUEL B. MASIYU	9996538	0757296325	
18	PACATAAD WATAKUTU	11564644	0705388465	
19	ESTHER WANYONYI	7986615	07441889383	
20	MARGARET BAKSA	12440269	0759840498	

Record

Environmental Impact Assessment Public Participation Attendance

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Dates: 15-04-2026

Venue: MTC - SICHÉ I

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature: *[Signature]* Date: 15-04-2026

Signature: *[Signature]* Date: *[Blank]*

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	MICHA NIKILO	3937586	0722583449	<i>[Signature]</i>
02	HENRY NABISWA	2086306	0726097661	<i>[Signature]</i>
03	JACOB LUNYELEKWE	13436609	0742526284	<i>[Signature]</i>
04	HAVILLA OMUSE	40936873	07944772297	<i>[Signature]</i>
05	ELUD J. MANDONZI	7993709	0725624800	<i>[Signature]</i>
06	WILSON WESKIA	26037753	0726037753	<i>[Signature]</i>
07	STANLEY W. MUKIGI	10359642	0714691246	<i>[Signature]</i>
08	JACOB W. K. MUKIGI	21501215	0790018702	<i>[Signature]</i>
09	JACOB S. MUKIGI	20920265	0745046226	<i>[Signature]</i>
10	AMOS K. MUKIGI	1379110	0716234577	<i>[Signature]</i>
11	JACOB MUKIGI	9459043	0727235862	<i>[Signature]</i>
12	VICTOR MUKIGI	24554689	0711774017	<i>[Signature]</i>
13	MARGARET N. NALONDO	1816976	0713514342	<i>[Signature]</i>
14	REAGAN W. NALONDO	8982437	0715166041	<i>[Signature]</i>
15	ZACHARIAH KIMUNA	0873495	0708119060	<i>[Signature]</i>
16	ELUD MUKIGI	2089495	0711980608	<i>[Signature]</i>
17	JACOB MUKIGI	2088458	0711851889	<i>[Signature]</i>
18	MILIE N. NALONDO	20463067	0711487851	<i>[Signature]</i>
19	JANE KUSIBENTA	14610647	0727356174	<i>[Signature]</i>
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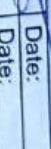
COUNTY PUBLIC HEALTH

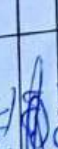
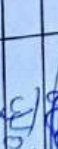
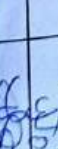
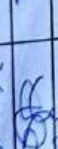
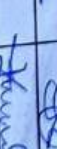
STATE DEPARTMENT OF MEDICAL SERVICES
BUNGOMA CENTRAL

548 COUNTY ADMIN

Environmental Impact Assessment Public Participation Attendance

Record

Proponent: STATE DEPARTMENT OF MEDICAL SERVICES
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 Signature:  Date:
 Proponent Rep: Signature:  Date:

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	JAEEDH N. MAKHANI	79788899	0713913338	
02	EDICK N. WAKULWA	34004406	0792568961	
03	MARY MAKATI	86114163	0725459593	
04	WYOLIFE KISIELO	7604650	0794740283	
05	BENARD S. SICHHEI	98968824	0701514315	
06	RONALD THARSA	7843073	0714648688	
07	ERIAN KUSTESI	33716807	0727879515	
08	STANLEY KUMAKUWA	33530425	0758335499	
09	SILVIAH BARASA	89157420	0700723947	
10	MARY N. WABIRE	20424728	0717985806	
11	CASPERUS WARELA	22608083	0702294872	
12	JOHN S. WAKUSIO	21373247	0769577566	
13	JACKLINE N. SIKUTA	7981174	0718684892	
14	ELIUD KISASATI	80765899	0729828875	
15	BONCHU WENES			
16	MAYI KIBIKI	2096689		
17	TOTHEM WAMULIHA	24324727	0713810129	
18	GEORGE KUTIKA	0129567	0714458671	
19	MARGARET N. NALONDO	1810976	0713514342	
20	GEORGE M. BARANDA	23097622	0748712867	

Environmental Impact Assessment Public Participation Attendance

Record

Proponent: STATE DEPARTMENT OF MEDICAL SERVICES
 Project: PROPOSED BUNGOMA LEVEL (VI) TEACHING AND REFERRAL HOSPITAL ON PLOT NO. LR BOKOLU/CHWELE/2458 IN BUNGOMA COUNTY

Dates: 15-04-2026
 Venue: MTC - SICHEI
 NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)
 Proponent Rep: Signature: Edgar Eredi Date: 15/4/2026

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
01	ISRAEL BUSEOJA	80474866	0726569424	<u>Buseja</u>
02	Samuel Nyongesa	8983063	0707903423	<u>Samuel</u>
03	Wanjala Sandulici N.	7979388	0769305563	<u>Wanjala</u>
04	Gertrude Chachaki	20376019	0783168235	<u>Gertrude</u>
05	Rehema Adhime	80696731	076115931	<u>Rehema</u>
06	ROGER WAGIM	80349703	07424727890	<u>ROGER</u>
07	JAM MATEU	24253354	0727557178	<u>JAM</u>
08	KIFOD WAKABA	11561995	0794710203	<u>Kifod</u>
09	WYCLIFFE KISLEO	7604650	0713781353	<u>Wycliffe</u>
10	Emmanuel Wachie	7976933	0713580861	<u>Emmanuel</u>
11	Philip Muteuthya	2088726	0729255399	<u>Philip</u>
12	Alice N. Wanyonyi	9900801	07971490951	<u>Alice</u>
13	PAULINE MABUKO	2081858	0706143432	<u>Pauline</u>
14	ANNA MATEWU	12939321	0700724525	<u>ANNA</u>
15	THOMAS WERESIA	8783416	0716805696	<u>THOMAS</u>
16	SIMON MAMUKO	8066953	0702974314	<u>SIMON</u>
17	LOISWA TEMBI	80930849	0716468203	<u>LOISWA</u>
18	Penelope Mawawu	80882209	0714548688	<u>Penelope</u>
19	RONALD TAPISA	7343073	0713124777	<u>RONALD</u>
20	Frederick Situma	2650205		<u>Frederick</u>

Record

Environmental Impact Assessment Public Participation Attendance

Proponent: STATE DEPARTMENT OF MEDICAL SERVICES

Project: PROPOSED BUNGOMA LEVEL (VI) TEACHING AND REFERRAL HOSPITAL ON PLOT NO. LR BOKOLI/CHWELE/2458 IN BUNGOMA COUNTY

Dates: 15-08-2026

Venue: MITC - SIGETI CAMPUS

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Proponent Rep:

Signature: *[Signature]* Date: 15/08/2026

Signature: *[Signature]* Date:

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04	Matt Mwangi Misiwa	2331828	0763018858	<i>[Signature]</i>
05	Janet Wokwange	7991421	0713255333	<i>[Signature]</i>
06	Regina Mwangi	2088004	0710562605	<i>[Signature]</i>
07	Ruth Njima	33746425	0715152751	<i>[Signature]</i>
08	Caroline Mwangi	28330042	0742573550	<i>[Signature]</i>
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Record

Environmental Impact Assessment Public Participation Attendance

Proponent: STATE DEPARTMENT OF MEDICAL SERVICES

Project: PROPOSED BUNGOMA LEVEL (VI) TEACHING AND REFERRAL HOSPITAL ON PLOT NO. 1R BOKOLI/CHWELE/2458 IN

BUNGOMA COUNTY

Dates: 15-04-2026

Venue: MTC - SICH 81

NEMA EIA Lead Expert: Edgar Eredi (NEMA Reg 1921)

Signature:

Signature:

Date:

Date: 14/2026

Proponent Rep:

S/N	Attendee Name	ID NO	PHONE NO	SIGNATURE
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03	OLIVE A. TURNER	26041533	0700405797	
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ASSISTANT CHIEF
SICHI SUB LOCATO
BUNGOMA CENTRAL

APPENDIX 7: BASELINE AIR QUALITY MEASUREMENT

Note on methodology: The baseline air quality data presented below has not been derived from independent field measurement at the Bungoma site, but is extrapolated from a comparable project location, as explained below.

Dedicated ambient air quality field monitoring was not independently carried out at the Bungoma project site at the time of preparing this report. In the absence of site-specific measurement, an extrapolated baseline has been adopted, drawing on air quality monitoring undertaken at the comparable South Rift Level VI Teaching and Referral Hospital site in Kericho County (the subject of a companion ESIA), using the NEMA-registered laboratory Mazingira Limited and calibrated EPAM-5000 sampling equipment.

The Kericho monitoring campaign sampled four residential receptor points over a 24-hour period. Results recorded were: PM₁₀ in the range of 0.006-0.070 mg/m³; PM_{2.5} in the range of 0.002-0.072 mg/m³; carbon monoxide (CO) in the range of 0.302-0.413 mg/m³; carbon dioxide (CO₂) in the range of 0.18-0.26 mg/m³; oxides of nitrogen (NO_x) below 0.031 µg/m³; and oxides of sulphur (SO_x) in the range of 0.30-0.48 µg/m³. All parameters were within the limits set by the Environmental Management and Coordination (Air Quality) Regulations, 2024, and within World Health Organization (WHO) Air Quality Guideline thresholds.

The Bungoma site, located at Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, shares a similarly semi-rural setting with low industrial and vehicular emission sources, comparable to the Kericho site. On this basis, baseline air quality at the Bungoma site is reasonably expected to be comparable to, or better than, the levels recorded at Kericho.

It is recommended that dedicated on-site air quality monitoring be carried out at the Bungoma site as part of the first-year Environmental Audit required under the conditions of the NEMA EIA licence, in order to confirm the extrapolated baseline prior to, or during, construction.

Commitment to Confirmatory Air Quality Monitoring

The extrapolated baseline set out above is adopted for the purposes of this assessment on the basis that the Bungoma and Kericho sites share a comparable semi-rural, low-industrial setting, and that the construction-phase air quality impacts assessed in this report are of Low to Medium significance and are managed by the same mitigation measures irrespective of the precise baseline value. The Proponent nevertheless commits to confirmatory site-specific monitoring on the following explicit and time-bound terms:

Commitment	Specification
Parameters	PM10, PM2.5, NO2, SO2 and total suspended particulates
Locations	A minimum of four points: the site boundary nearest the residential receptors; the boundary nearest Sichei KMTC; the proposed clinical air-intake position; and an upwind control point
Method	Continuous sampling over a minimum of 24 hours per point, by a NEMA-registered laboratory using calibrated equipment, reported against the EMC (Air Quality) Regulations 2024 and WHO ambient guidelines
Responsible party	The Proponent (Ministry of Health, State Department of Medical Services), through a NEMA-registered laboratory
First monitoring round	Before commencement of construction works, and in any event within three (3) months of the date of the NEMA licence
Confirmatory round	As part of the Year-1 Environmental Audit required under Section 68 of EMCA and the conditions of the NEMA licence, and annually thereafter for the duration of construction
Reporting	Results submitted to NEMA with the annual environmental audit, and to the African Development Bank through the quarterly safeguard report for the period in which monitoring is undertaken
Consequence of variance	Should measured values differ materially from the extrapolated baseline adopted here, the air quality impact assessment and the associated mitigation measures in the ESMP will be revisited and the Bank notified in the next quarterly safeguard report

APPENDIX 8: STAKEHOLDER ENGAGEMENT PLAN (SEP)

1. INTRODUCTION

1.1 *Overview*

The Government of Kenya through the Ministry of Health has received funding from the African Development Bank (AfDB) towards the implementation of the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) to be developed on Plot L.R No. Bokoli/Chwele 2458, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County. The proposed facility is a modern 700-bed tertiary healthcare, teaching, research and trauma referral complex.

The proposed project aims to improve access to quality healthcare services within the Western Kenya region and neighbouring counties through the establishment of a modern 700-bed referral and teaching hospital equipped with specialized medical facilities, training infrastructure, emergency care services, and improved health support systems. The project is expected to strengthen healthcare delivery, enhance medical training and research, reduce referral cases to distant national hospitals, and improve overall public health outcomes within the region.

The proposed facility is a 700-bed Level VI teaching and referral hospital on a site of approximately 50 acres on Plot L.R No. Bokoli/Chwele 2458. These figures are consistent with the Feasibility Study Report, the ESIA and the approved bed schedule, and govern for all purposes of this Plan.

The proposed hospital project is expected to generate significant socio-economic and health benefits to the local community and the country at large. These benefits include improved access to specialized and affordable healthcare services, creation of employment opportunities during the construction and operational phases, stimulation of local businesses through increased demand for goods and services, enhancement of medical training and research opportunities, and improvement of regional healthcare infrastructure.

The project will also contribute towards achievement of the Government's Universal Health Coverage (UHC) agenda by improving healthcare accessibility and service delivery within the Western Kenya region.

However, implementation of the proposed project may also result in several environmental and social impacts during the construction and operational phases. Anticipated impacts may include increased dust emissions, noise and vibration, generation of construction waste, increased pressure on water and energy resources, occupational health and safety risks, traffic congestion, and temporary disruption of neighbouring activities during construction works. During operation, impacts may include increased generation of healthcare waste, wastewater generation, increased demand for utilities, and public health and safety concerns if not properly managed.

The proposed project site is currently undeveloped government land with no major permanent

structures. Nevertheless, the project design and implementation process will ensure that any affected persons, neighbouring communities, institutions, and stakeholders are adequately consulted and involved throughout the project cycle. Special consideration will also be given to vulnerable groups and neighbouring institutions to ensure that the project is implemented in a socially inclusive and environmentally sustainable manner in compliance with relevant Kenyan environmental laws and the African Development Bank(ADB) Guidelines on Stakeholder Consultation and Participation.

The proposed mitigation measures and Environmental and Social Management Plans (ESMPs) will therefore be developed to address all identified impacts and enhance positive outcomes associated with the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) project.

1.2 Goal and Objectives of Stakeholder

The Goal

The Ministry of Health recognizes that the Project affects and as well is affected by various stakeholders who pose varied needs for engagement and consultation. The goal of this stakeholder engagement strategy is to build informed stakeholder support base, ownership and provide adequate stakeholder participation space and modes of communication for the successful implementation of the RAP/VMGP as well as the overall hospital project.

Land and livelihoods related issues are often the biggest source of community grievances against development projects. There is need therefore to engage all critical stakeholders for the success of the project. The aim of SEP within the resettlement implementation processes is to ensure that all interested and affected parties are informed and involved throughout the project phases. The strategic general objective is to ensure a collaborative and a participatory approach during the implementation of the RAP and VMGP and at large the entire project. This Stakeholder Engagement Plan (SEP) seeks to define a technically and culturally appropriate approach to consultation and disclosure. The goal of this SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project- affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions.

Specific Objectives

The main objectives of this Plan include:

- To comply with regulations and requirements on disclosure and stakeholder consultation as per the Kenyan policies and legislation as well as International best practice in particular African Development Bank (AfDB) requirements;
- Map out stakeholders and provide in-depth analyses of the interests and needs of consultation of the different stakeholder groups;
- Identify the most effective methods and structures through which the Project information can be disseminated, and to ensure regular, accessible, transparent and appropriate stakeholder engagement;

- Provide guidance for the Project to build mutual, respectful, beneficial and lasting relationships with stakeholders;
- Implement and enable review whether necessary the present Grievance Redress Mechanism (GRM), making sure it affords all stakeholders or interested citizenry the ability to provide feedback, channel their concerns and, thereby, access information and, where relevant, seek recourse and remedy under the GRM. The GRM also provides the options available to PAPs for grievances they may have as they arise during implementation of RAP and VMGP;
- Reporting, monitoring and feedback measures that ensure the effectiveness of the SEP and periodical reviews of the SEP based on findings; and
- Define roles and responsibilities for the implementation of the SEP;
- Gather feedback on RAP/VMGP implementation process for future guidance.

This SEP is being implemented in line with the country's national legislation, the lenders' requirements, and in accordance with international best practice. It is also taking into consideration the social and cultural norms among the affected communities that define how information is shared, while working through the existing local structures.

1.3 Preparation of the Stakeholder Engagement Plan

Disclosure of this Stakeholder Engagement Plan

This Stakeholder Engagement Plan is disclosed on 29 July 2026 through the following channels: the Ministry of Health project webpage; the African Development Bank public disclosure platform; the offices of the County Government of Bungoma; the offices of the Sub-County and Ward administration serving the project area; and in hard copy at the hospital administration office. A summary in Kiswahili is disclosed through the same channels. The Plan is reviewed and re-disclosed on any material revision, and at least annually during implementation.

This SEP has been developed to document a process through which the Project (either through the RIC, PIU or PMU) will engage its stakeholders on the hospital Project in a structured, informed and regular manner. The following steps were undertaken to develop this SEP:

- (a) Meetings with stakeholders: This specific SEP is largely informed by the stakeholder engagements during preparation and disclosure of the RAP report to the various stakeholders of the Bungoma Level VI hospital
- (b) Literature review: Further, it was developed through a review of documents such as disclosed RAP, ESIA, VMGP, Project Communication Plan and existing Kenyan policies, legislations and internationally acceptable standards and guidelines.

2.0 PROJECT CONTEXT

2.1 Project Location

The proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) Project will be located on Plot L.R No. Bokoli/Chwele 2458 in Bungoma Town area, Kabuchai Sub-County, Bungoma County, within the Western Kenya region of Kenya. The project site lies along the strategic Trans-Africa Highway (Mombasa-Kampala corridor) that connects Western Kenya to Uganda and the greater East African region and neighbouring East African countries including Uganda, Rwanda, Burundi, South Sudan, and Tanzania. The proposed hospital site is strategically positioned near the Bungoma

Town–Bungoma Highway and Bungoma Town–Muhoroni Highway, which are major transport corridors characterized by high traffic volumes and frequent road accidents.

The proposed Level VI Teaching and Referral Hospital is intended to serve the wider Western Kenya region and neighbouring counties including Bomet, Nandi, Nakuru, Baringo, Uasin Gishu, and parts of western Kenya. Upon completion, the facility will provide specialized healthcare services, emergency and trauma care, medical training, research, and referral services to the growing regional population. The project is expected to improve access to quality healthcare, reduce referrals to distant national referral facilities such as Moi Teaching and Referral Hospital, and strengthen healthcare delivery within the Bungoma and East African region.

2.2 *Geography*

Bungoma County is one of the 47 counties of Kenya, located in the Western Kenya region. The County borders Trans Nzoia County to the North, Kakamega County to the South and South-East, Uasin Gishu County to the East, and Uganda to the West. The County is strategically positioned along the Trans-Africa Highway (A104) connecting Nairobi to Malaba and the greater East African hinterland, making it an important economic and logistics hub within the region.

Bungoma County is administratively divided into nine sub-counties: Kanduyi, Webuye East, Webuye West, Kimilili, Mt. Elgon (Cheptais), Sirisia, Bumula, Kabuchai, and Tongaren. The proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) Project is located within Kabuchai Sub-County on Plot L.R No. Bokoli/Chwele 2458, Sichei Village, Mukuyuni Ward. The project area is strategically situated near the Bungoma–Webuye and Bungoma–Malaba road corridors, which serve as major transport arteries linking Western Kenya to Uganda and the broader East African region. The proposed project is therefore expected to serve residents of Bungoma County and neighbouring counties within Western Kenya and the wider East African region through provision of specialized healthcare, emergency response, medical research, and teaching services.

2.3 *Social context*

The proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) Project is located within a socially active and economically vibrant region of Bungoma County. The project area is characterized by strong community structures, active local leadership, and established social institutions that play a significant role in community mobilization and development initiatives. Community participation within the project area remains high, with local leaders, administrators, religious institutions, youth groups, women groups, and community-based organizations actively involved in addressing social, economic, and environmental challenges affecting the region.

The communities within Kabuchai Sub-County have continued to demonstrate strong support for

development initiatives aimed at improving healthcare services, infrastructure, and socio-economic wellbeing. Various organized groups including Self-Help Groups, Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and local welfare associations actively participate in community development activities and public consultation forums. The presence of these organized social structures is expected to enhance stakeholder engagement, promote effective community participation, and support sustainable implementation of the proposed hospital project.

The project area also hosts a diverse population whose livelihoods largely depend on agriculture, trade, transport-related businesses, and public sector employment. Due to the strategic location of the proposed facility along major transport corridors prone to frequent road accidents, the local communities have expressed the need for improved emergency response and specialized healthcare services. The proposed project is therefore expected to receive significant community support owing to its anticipated contribution towards improved healthcare access, employment opportunities, medical training, and regional socio-economic development.

2.4 Demographics

According to the 2019 Kenya Population and Housing Census, Bungoma County has experienced steady population growth driven by urbanization, agricultural activities, and expanding economic opportunities within the Western Kenya region. Kabuchai Sub-County, where the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) Project is located, comprises a rapidly growing population distributed across various wards and trading centres including Chwele, Malaba, and Kabuchai Town. The region serves as an important commercial and transport hub along the Trans-Africa Highway (Mombasa-Kampala corridor), contributing to increased population movement and settlement within the area.

The Western Kenya region served by the proposed project has an estimated population of approximately 4,986,341 people according to the 2019 Kenya National Bureau of Statistics (KNBS) Census, with projections indicating continued population growth in the coming years. The population is characterized by a high demand for quality healthcare services, emergency response, specialized treatment, and referral services due to increasing cases of road accidents, communicable and non-communicable diseases, and maternal and child health needs. The region also records significant movement of people and goods along the Bungoma Town–Bungoma and Bungoma Town–Muhoroni highways, increasing pressure on existing healthcare facilities.

The area surrounding the proposed project site is predominantly inhabited by farming communities, small-scale traders, transport operators, and public servants. The population density within the urbanizing centers of Bungoma Town and surrounding areas continues to increase due to improved infrastructure and economic activities. Consequently, the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) is expected to play a critical role in addressing the growing healthcare demand within Bungoma County, neighbouring counties, and the wider Bungoma and East African region.

3.0 SUMMARY OF NATIONAL LEGAL REQUIREMENTS AND INTERNATIONAL GOOD PRACTICE

3.1 *National Regulatory Requirements for Public Participation*

Public participation is a constitutional requirement specifically, Article 1 of Constitution of Kenya states that sovereign power belongs to the people. This principle of public participation intends to enhance, promote and facilitate public participation in governance processes. Further, the Constitution endeavors to ensure the following;

- Promote democracy and participation of the people in accordance with Article 10 of the Constitution;
- Promote transparency and accountability in decision making;
- Enhance public awareness and understanding of governance processes; promote community ownership of public decisions; and
- Promote public participation and collaboration in governance processes.

3.2 *International Stakeholder Consultation requirements*

3.2.1 *African Development Bank Integrated Safeguards System (2023) — Operational Safeguard 2: Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation*

The African Development Bank (AfDB) AfDB ISS (2023) Operational Safeguard 2 includes safeguards to address and mitigate impoverishment risks arising from involuntary resettlement. Thus, the Bank provided for mitigation against actions that may be taken to relocate PAPs without the displaced person's informed consent or power of choice.

The experience of the Bank on control measures on the involuntary resettlement under development projects indicates that if not mitigated, the process gives rise to negative socio-cultural and economic impacts on the resettled people. The objectives on AfDB's policy on involuntary resettlement indicates that;

- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs;
- Borrower needs to inform potentially displaced persons at an early stage about the resettlement aspects of the project and take their views into account in project design;
- Displaced persons and their communities, and any host communities receiving them, should be provided with timely and relevant information, consulted on resettlement options, and offered opportunities to participate in planning, implementing, and monitoring resettlement.

3.2.2 *African Development Bank Safeguards — Community Engagement and Vulnerable Groups*

The Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples. The Bank-financed projects include measures to (a) avoid potentially adverse effects on the Indigenous Peoples' communities; or (b) when avoidance is not feasible, minimize, mitigate, or compensate for such effects.

No involuntary resettlement, land acquisition, physical or economic displacement, or impact on

Indigenous Peoples has been identified for this project. The site is public land already set aside for the purpose and no persons are to be relocated. Accordingly, no Resettlement Action Plan and no Vulnerable and Marginalised Groups Plan is required. The community engagement requirements of the African Development Bank Integrated Safeguards System (2023), in particular Operational Safeguard 10 on Stakeholder Engagement and Information Disclosure, apply in full and are implemented through this Stakeholder Engagement Plan, with particular attention to the inclusion of women, youth, older persons, persons with disabilities and low-income households. Should any land-related impact be identified during implementation, the requirements of Operational Safeguard 2 will be applied and the Bank notified. Operational Safeguard 2 (Involuntary Resettlement) of the AfDB Integrated Safeguards System (2023), that is compatible with the Indigenous Peoples' cultural preferences, and includes a land-based resettlement strategy.

In regard to AfDB OP 4.10 and 4.12; the RIC will continue to sensitize, engage and consult the PAPs and all relevant stakeholders on all matter that affects them in all phases of the RAP implementation process in this project.

5 STAKEHOLDER ENGAGEMENT PROCESS AND APPROACH

The SEP recognizes that to plan and conduct effective stakeholder engagement activities certain factors must be taken into consideration. These factors may include:

- a. Stakeholders and their interests may change over time given the stakeholder's situation is dynamic.
- b. Stakeholder Identification and Analysis: Recognizing and analyzing the diverse stakeholders involved, including their interests, concerns, and influence, while also acknowledging that stakeholders and their interests may evolve over time.
- c. Communication and Information Dissemination: Ensuring transparent and culturally sensitive communication channels to disseminate necessary information to stakeholders, enabling their meaningful participation in informed decision-making processes.
- d. Capacity Building and Inclusivity: Providing training and resources to stakeholders, especially marginalized or underrepresented groups, to enhance their capacity for participation, while ensuring inclusivity and respect for cultural diversity.
- e. Timeliness and Flexibility: Engaging stakeholders early in the planning process and maintaining flexibility to adapt engagement strategies based on feedback and changing circumstances.
- f. Constructive External Relationships: Initiating and maintaining constructive relationships with external stakeholders over time to foster trust and collaboration throughout the project lifecycle.
- g. Context-Specific Consultations: Conducting context-specific consultations tailored to the needs and preferences of stakeholders, recognizing that there is no one-size-fits-all approach to engagement.
- h. Documentation and Accountability: Documenting consultation activities and outcomes to track progress, ensure accountability, and publicly commit to responding to stakeholder concerns within specified time frames.

- i. Feedback Mechanisms and Conflict Resolution: Establishing feedback mechanisms for stakeholders to express concerns and grievances, and implementing fair and transparent conflict resolution processes to address disagreements.
- j. Environmental and Social Safeguards: Incorporating measures to mitigate potential environmental and social impacts of the project, and addressing stakeholder concerns regarding these issues.
- k. Ethical Considerations: Upholding ethical principles such as integrity, honesty, and respect for human rights throughout the engagement process, while recognizing and addressing gender-based concerns and ensuring equal representation and participation.

5.1 Stakeholder Identification and Categorization

The Bungoma Level VI hospital Project stakeholders were identified and classified on the basis of a number of factors, including proximity to the main project, level of concern, criticality to the Project success (e.g. management), influence over the success etc.

Project stakeholders were identified at the following levels:

- Local Level: This includes all individuals, groups, and organizations physically located within the project's Zone of Influence who could be directly affected by project activities or investments, or those who may oppose project implementation.
- County Level: This group comprises individuals, groups, or organizations indirectly affected by the project implementation. They may be elected officials, community leaders, or representatives of local government bodies within the county where the project is located.
- National Level: This group comprises individuals, groups or organizations that may be required to provide specific services to those affected by the project such as Ministry of Lands, Water, Sanitation and Irrigation, Education, internal security, NLC or entities responsible for setting standards and regulations for the implementation of the Resettlement Action Plan (RAP).

The project's stakeholders encompass both internal and external entities. Internal stakeholders include the Project Implementation Unit (PIU) and Project Management Unit (PMU), directly involved in project execution. External stakeholders, such as the Project Affected Persons (PAPs), are impacted by the project's activities. These stakeholders derive from various spheres:

In addition, these are derived from several spheres:

- Public: National and County government civil servants in charge of various sectors of concern to the project
- Political: Elected representatives of the people in the project zone of impact (Senators, Governors, Women Representatives, MPs, MCAs).
- Non-profit: Voluntary and non-governmental organizations, social groupings active within the affected thematic areas and geographical scope.
- Private Organizations/Professional Associations: Entities interested in project partnerships.
- Religious or Faith-based: Representatives of various religions, some of whom operate projects in the area.
- Traditional; Respected community leaders with traditional authority, knowledgeable about the area customs and culture

- **Media:** Owners, managers, and representatives of media outlets covering project developments.

The Ministry, through the RIC, compiles and maintains a comprehensive list of its stakeholders and develops a database informed by the stakeholder analysis. The database provides information on the stakeholders' rights and/or responsibilities as well as their capacity to engage meaningfully in the Project (i.e., factors such as literacy, norms, and decision-making via village elders, etc.). The records are reviewed routinely and updated to reflect any identifiable changes in stakeholder status or circumstances. The following actions are performed as part of implementing this SEP.

- The Stakeholder Register aims to maintain a comprehensive list of institutions and agencies for regular consultation and updates, which is routinely reviewed.
- The Commitments Register is enhanced to monitor all new social safeguards commitments made by the Ministry to its stakeholders throughout the Project's duration, ensuring timely fulfillment of promises and fostering trust and positive relationships.
- Stakeholder Categorization is revised to appropriately prioritize "affected sub-locations, villages, and individuals" and "other interested parties," facilitating effective engagement and liaison activities.
- Key Stakeholder Profiles is maintained for designated key informants and individuals with influence or high impact, capturing their knowledge, legitimacy, and willingness to engage with the Ministry.
- Stakeholder Engagement/Community Liaison Planning is conducted for each event or activity, considering practical issues, potential risks, and culturally appropriate approaches.
- Contact Register/Reports is implemented to document all stakeholder interactions, excluding grievances which is handled separately as outlined in chapter 4. Designated officers will complete this register, and information from Contact Reports is added to the stakeholder database to support planning and targeted engagement activities through keyword searches and generating stakeholder lists.

5.2 *Stakeholder Analysis*

Project stakeholders were analyzed to determine the level of engagement necessary to appropriately include them.

5.3 *Guiding Principles for Implementing the Stakeholder Engagement Plan*

Stakeholders are fully informed of and invited to participate actively in key decisions regarding the resettlement and livelihood restoration plans as well as display of proposed designs of the houses, which markedly impact their lives, well-being and communities. Stakeholders with a high stake in the Project is engaged regularly.

- Stakeholder engagement is well planned and is carried out continuously throughout the RAP/VMGP implementation phase;
- Public engagement is conducted in very close proximity to affected villages, especially those prioritized areas at significant risk of adverse socio-economic impacts and extended disruption during construction;
- Public engagement is conducted in neutral places where invited stakeholders feel comfortable to participate and where no power relations/dynamics or threats can affect the process negatively;

- Announcements of public engagement is displayed prominently in Kiswahili and English e.g. using public address announcements mounted on office vehicles, large posters displayed in numerous public locations, through the local/chief's office with the capability to reach most people targeted by the message or through the use of mobile platforms commonly used by the target population, within the affected communities and placed at least 7 days prior to the scheduled event;
- Announcements of public engagement is accompanied with the circulation of background materials (such as posters and previous meetings brief) about the Project to serve the specific purpose of the interaction. This may include progress briefs and/or minutes of previous meetings to assist key stakeholders to get prepared for the discussion;
- Engagement is inclusive. Care is taken to identify, invite and engage with all categories of local stakeholders including all PAPs and the special groups (e.g. women, persons with disabilities and youth).
- Public disclosure of plans, information and expected impacts/disruptions is honest, understandable and transparent to local stakeholders, including persons who are not literate, all information going out is translated into local languages where needed.
- Stakeholder engagement is managed by capable organizational staff who have facilitation, communication and conflict resolution skills; and
- Public consultations are carefully and efficiently documented and records are kept including weekly, monthly, quarterly reporting as well as RAP/VMGP implementation progress reports. These include photographs, documentaries and registration forms (when applicable), copies of the announcements, etc.

5.4 *Stakeholder Communication Plan*

5.4.1 *Objective*

The objective of this communication plan is to define the communication requirements for the Project and how information is shared. A good plan describes the following:

- What information is communicated including the level of detail and format;
- How the information is communicated - in meetings, email, telephone, web portal, WhatsApp, etc.;
- When information is distributed, the frequency of Project communication, both formal and informal;
- Who is responsible for communicating project information;
- Communication requirements for all project stakeholders;
- How sensitive or confidential information is communicated and who must authorize this;
- How changes in communication or the communication process is managed;
- Any constraints, internal or external, which may affect Project communication; and
- The escalation process for resolving any communication-based conflicts or issues

5.4.2 *Key Communication Principles*

The following key considerations guide the formulation of communication messages and decisions on the channels to be used:

- The involvement of the project beneficiaries (the PAPs and those affected directly by the Project) and community members in the design and dissemination of information.

- Multiple communication channels are utilized, including group meetings, workshops, radio broadcasts, newsletters, social media platforms, fact sheets, and frequently asked questions (FAQs), tailored to the needs and accessibility of the target audience. All documents are translated into Swahili and Duruma to ensure broader accessibility.
- Use of multiple channels of communication including group meetings, workshops, radio, newsletters, social media, fact sheets, frequently asked questions (FAQs), etc. based on the needs and access requirements of the target audience. All documents are translated into Swahili and Kiswahili to facilitate a broader reach.
- Ability to communicate with a broad range of people is ensured through the use of easily understood media, such as local radio stations broadcasting in local languages.
- Sensitivity to Government of Kenya (GoK), the financiers (African Development Bank (AfDB)), and other communication requirements is maintained to safeguard the integrity of the process and the authenticity of the messages.
- Evidence-based media engagement: The designated officer from the RIC is responsible for the Social Engagement Plan (SEP) and monitors and evaluates the effectiveness of the information shared and the channels used, making adjustments as appropriate. The officer is engaged on a full-time basis to oversee the implementation of the SEP and communication plan.

5.4.3 When to Communicate

Project communication is structured to offer regular updates while maintaining flexibility to address emerging issues. There is a heightened focus on engaging with the community at the grassroots level, including Project Affected Persons (PAPs), host community members, and local leaders. Specifically, PAPs receive regular updates and are informed of any activities that may affect their operations. Providing a list of received and resolved complaints occurs during regular meetings, one-on-one discussions, and on an as-needed basis to ensure communities rely on accurate information rather than rumors as their primary source of Project updates.

5.4.4 Targets, Messages and Communication Channels

Part of managing stakeholder relationships involves keeping track of who speaks on the Project's behalf and monitoring statements made by third parties. Table 5.1 presents a list of key stakeholders who receive information on the Project, the frequency of engagement, and the level of interaction. This list is regularly reviewed and adjusted based on changing contexts and communication needs.

The table below also delineates the key roles and responsibilities regarding communication by different actors. Although the RIC nominates an officer to oversee the communication aspects of RAP/VMGP implementation, the PMU's Communication Specialist provides overall coordination and oversight throughout the SEP implementation and other project activities. These two roles collaborate closely with other members of the Project Management Unit (PMU) and RIC to execute communication activities, including:

- Provide leadership, support, and oversee the implementation of the communication and outreach

plan for the Project in consultation with the PIU.

- Develop and ensure timely implementation of a work plan on and outreach in line with the IDA guidelines.
- Create appropriate linkages between the various implementers, including Project partners and national counterparts, as appropriate.
- Take appropriate and pre-emptive measures to mitigate any negative publicity on the Project activities.
- Monitor and document the communication effects and impacts of the Project.
- Establish and maintain a database of key stakeholders and their communication needs - this database is reviewed and updated regularly.
- Support the Project stakeholders to package and share information on a regular basis - this could be in the form of a newsletter, status reports, FAQ, website, etc.

5.4.6 Communication Crisis Action Plan

This Communication Crisis Action Plan is designed to provide a structured approach to managing communication during crises that may arise within the Bungoma Level VI Hospital Project.

Crisis Communication Team	Roles and Responsibilities
Team Leader: PMU-Project Manager	Overall coordination and decision-making and project spokesperson unless delegate this responsibility to another team member
Team Members: PMU	
Project Coordinator	Providing project-specific insights – assess the nature and severity of the crisis, notify the crisis team, and activate the predetermined response plan.
Social Safeguard Specialist	Identify, and assess the nature and severity of the crisis, offer expertise on safeguard issues, compliance, and risk mitigation to the team
ESHS Specialist	Identify, and assess the nature and severity of the crisis, offer expertise on safeguard issues, compliance, and risk mitigation to the team
Communications Specialist	Crafting and disseminating approved key messages (PM/PC) through appropriate channels

Note:

Regularly review and update the crisis communication plan based on feedback, lessons learned, and changes in the project environment.

Conduct periodic drills and exercises to test the effectiveness of communication protocols and ensure the Crisis Response Team remains prepared to handle crises as they arise.

5.4.7 Indicators and Feedback Mechanisms

i) *Indicator 1:* Stakeholder Satisfaction Level

- Feedback Mechanism: Conduct annual stakeholder satisfaction surveys to assess satisfaction levels with communication, engagement opportunities, and project outcomes.
- Indicator: Percentage of stakeholders reporting satisfaction with communication processes and perceived impact of the project.

ii) *Indicator 2:* Participation rates in stakeholder engagement activities

- Feedback Mechanism: Track attendance and participation rates in community meetings, stakeholder forums, and workshops.
- Indicator: Number of stakeholders participating in engagement activities compared to the total number of stakeholders invited.

ii) *Indicator 3:* Response time to stakeholder feedback

- Feedback mechanism: Monitor response times to stakeholder inquiries, feedback submissions, and reported concerns.
- Indicator: Average time taken to acknowledge and address stakeholder feedback or concerns.

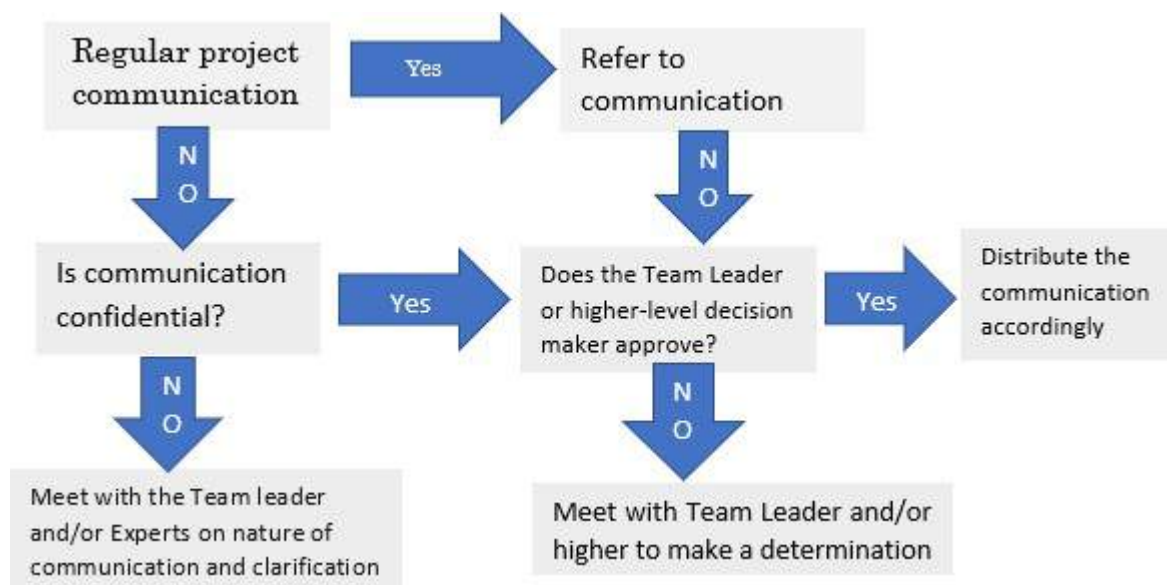
5.4.8 Monitoring and Evaluation Indicators

- Indicator 4: Communication Reach and Engagement
 - Number of website visits, social media impressions, and email open rates.
 - Indicator: Measure the reach and engagement of communication materials and activities.
- Indicator 5: Stakeholder Perception Change
 - Pre-and-post surveys to measure changes in stakeholder perceptions and attitudes towards the project*

5.4.9 Communication Escalation Process

All the key stakeholders with a better understanding of the steps involved in sharing of Project information. It is cognizant that there may be occasions or situations which fall outside of the *communication flowchart* where additional clarification is necessary. In such situations, the RIC is responsible for discussing the communication with MOH management to make a determination on how to proceed.

Communication flowchart



5.5 Communication Constraints

All projects are subject to limitations and constraints as they must operate within a specific scope, scheduling, and resource requirements. As part of communication management, there are legislative, regulatory, technological, or organizational policy requirements that must be followed. These constraints must be clearly understood and communicated to all stakeholders.

The management of communication must be done in an effective manner and within the constraints with set timeline and available resources. Subsequently, all Project communication activities will occur within the available resources and schedule.

The communication activities is undertaken according to the regularity detailed in the communication matrix *Table 5.1* in order to ensure the Project adheres to schedule constraints. The RIC is responsible for ensuring that approvals are requested and obtained prior to the distribution of any confidential information regarding the Project.

The presence of language barrier among the PAPs and the host communities requires that any information going out be translated into local languages.

5.5.1 Review of the Communication Plan

The designated communications officer overseeing the implementation of this plan, is required to

develop plans, for review by the PIU, similar to the other Project activities. Further, the officer is expected to prepare periodic reports (monthly and quarterly) that will brief subsequent periodic meetings. The review is internal with the primary aim of informing the process for more effective communication on the Project.

5.5.2 Key Messages

The following are some of the important messages that are given to the community members, PAPs and CSOs:

- a) Formation of grievance redress committees
- b) National Land Commission asset inspection and valuation process
- c) Compensation process;
- d) Status of completion/progress made so far on the Project;
- e) Design and the main Dam features (a visual representation in the form of a map is most preferred by the community members); and
- f) Gender mainstreaming interventions
- g) Livelihood restoration plans and other support interventions
- h) The GRM process for better understanding of how complainants can channel their complaints and grievances

5.5.3 Documentation/Records of Consultations

Records of consultation undertaken to date. A public participation meeting for the project was held on 15 April 2026 at the proposed project site, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, following seven days' notice issued through the provincial administration and local media. Participants included community members, women, youth, persons with disabilities, older persons, local administration, county and national government officers and other stakeholders. The signed attendance register, minutes recording the issues raised and the responses given, and site photographs are appended to the ESIA at Appendix 6 (Public Participation Records / Minutes) and form part of the record of this Plan. Subsequent consultation undertaken during implementation is recorded in the same format and retained by the Community Liaison Officer.

It is good practice to ensure that all stakeholder engagement is documented; therefore records is maintained of all stakeholder consultations and meetings. Information such as date, time, location and names of attendees is included, but the format is adapted as appropriate for any particular situation. The record will summarize what information was provided to or discussed with the attendees and in what form. It will also indicate any documents that were left with the participants. Records is available for public consultation whenever requested i.e. based on tools such as written reports, attendance lists, photos and videos, Q&A lists, etc.:

There is need to capture the following in writing during the engagement:

- Date and locations of all project information/consultation meetings
- The original purpose and aims of the engagement
- The methods used
- Type of information shared
- The exercises undertaken e.g. context analysis and problem identification, proposed solutions

and devised projects.

- Summary of any other noted stakeholder concerns, expectations and perceptions. May include registration of complaints via grievance register
- Stakeholder response strategy (responses to issues raised and requests)
- Attendance records showing the list of participants and all organizations consulted
- A summary of discussions and/or minutes and
- A robust list of outputs (decisions, actions, proposals, and recommendations).

6.0 GRIEVANCE REDRESS MECHANISM

6.1 *Introduction*

The main objective of the Grievance Redress Mechanism (GRM) for the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH) Project is to provide a transparent, accessible, and structured process for receiving, recording, reviewing, and resolving grievances arising from project planning, construction, and operational activities. The GRM is intended to ensure that concerns raised by project-affected persons, neighbouring communities, workers, and stakeholders are addressed promptly, fairly, and effectively in order to enhance community trust and minimize conflicts during project implementation.

Grievances arising from the project shall initially be reported through established local administrative and community leadership structures within the project area. Local leaders, village elders, community representatives, and ward administrators shall play an important role in facilitating dispute resolution and addressing concerns related to land, employment opportunities, environmental impacts, community health and safety, and other social concerns associated with the project. This first level shall form the primary tier of the GRM and will focus on resolving grievances amicably at the community level through dialogue and consultation.

Grievances that are not resolved at the community level shall be escalated to the Project Grievance Redress Committee (PGRC), which shall comprise representatives from the Ministry of Health, the contractor, local administration, community representatives, county government officials, and relevant sector agencies. The committee shall be responsible for reviewing complaints, conducting investigations where necessary, and providing appropriate resolutions within a specified timeframe.

Where grievances remain unresolved at the Project Grievance Redress Committee level, the matter shall be referred to the County Grievance Redress Committee under the supervision of relevant county administrative offices and government authorities. The committee shall provide an independent review of unresolved grievances and facilitate mediation between affected parties and the project proponent.

In cases where grievances are still unresolved after exhausting the administrative mechanisms, aggrieved parties shall have the right to seek legal redress through relevant judicial institutions including the Environment and Land Court, which shall serve as the final level of grievance resolution in accordance with the laws of Kenya.

The identified Grievance Redress Mechanism players for the proposed project shall include but not be limited to the following:

- Project Affected Persons (PAPs) and neighbouring communities.
- Community leaders and village elders.
- Ministry of Health.
- National Environment Management Authority.
- County Government of Bungoma County.
- Local administration including Chiefs and Assistant Chiefs.
- Contractors and supervising consultants.
- Community Based Organizations (CBOs) and Faith Based Organizations (FBOs).
- Relevant national government agencies.
- Environment and Land Court.

6.2 The GRM Process

The grievance mechanism is accessible to all affected parties, including vulnerable people. A Project grievance register and formalized grievance process will be developed together with the already selected hospital implementation committee. The process is structured according to recommended good practice, and comprises of the following six steps:

Step 1: Establishing and Publicizing Grievance Management Procedure. Step

2: Receive and Track Grievances

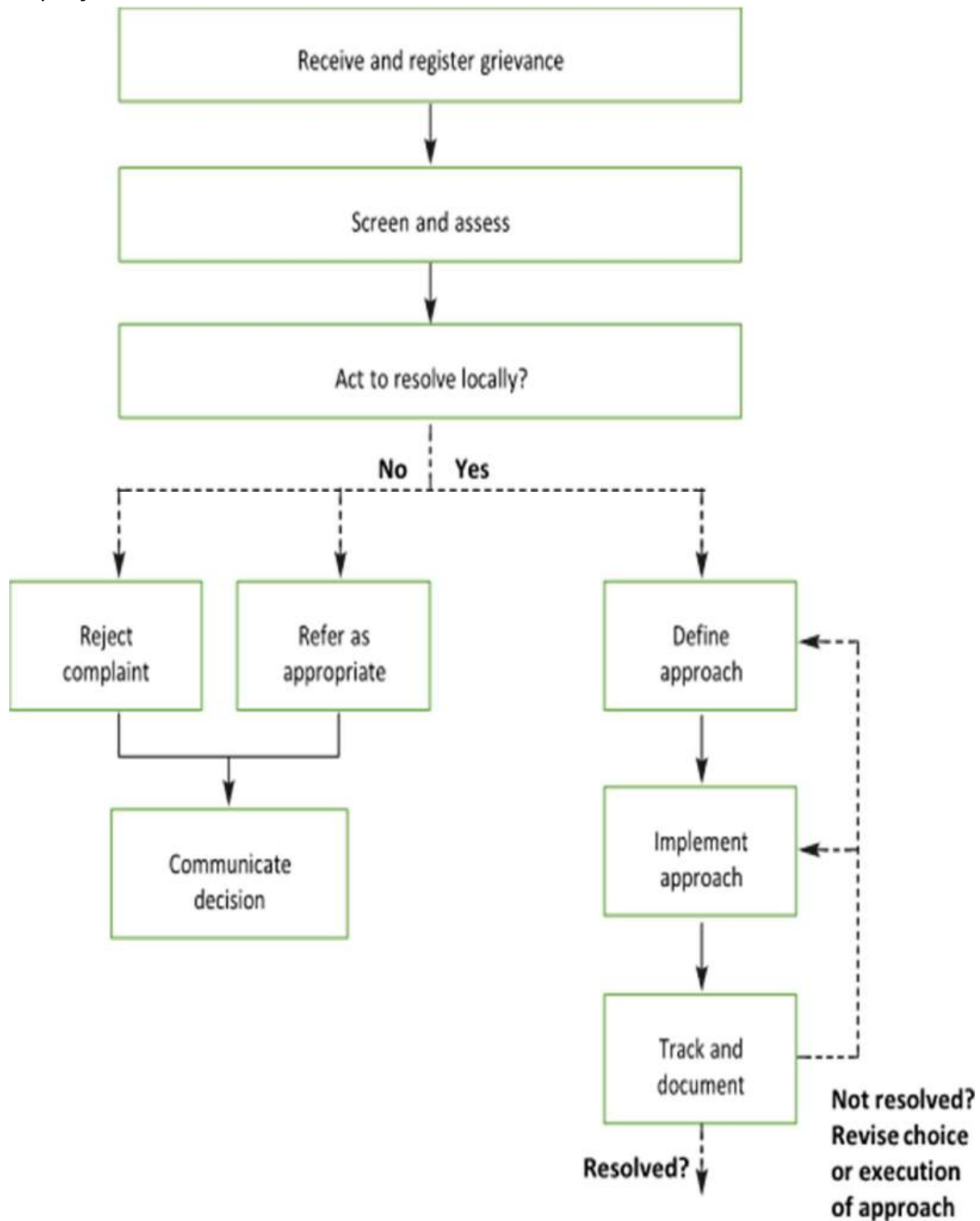
Step 3 Acknowledging Receipt of a Grievance

Step 4: Investigate Grievances

Step 5: Respond, Resolve and Close Out

Step 6: Monitor, Report and evaluate the grievances routinely

Typical Steps of Grievance Mechanism



6.3 Hearing of Complaints: where and by whom

Every complaint and appeal are heard by a GRC without any procedural technicality, but in a manner that is consistent with normal, traditional way of resolving contested matters minus any manifest bias and exclusionary practice. All hearings by a higher committee is open, unless the nature of the dispute is such as would warrant some restriction of public access to the proceedings, except that such restriction is very rare and then only in exceptional cases. A complaint shall have a right to prove his/her case entirely through the testimonies of others (without him/her testifying directly).

Every complaint and appeal are heard by a Grievance Redress Committee (GRC) without any procedural technicality but in a manner consistent with the normal, traditional way of resolving contested matters, without manifest bias or exclusionary practices. All hearings by a higher committee are open, unless the nature of the dispute warrants some restriction of public access to the proceedings, which is very rare and only in exceptional cases.

A complainant has the right to prove their case entirely through the testimonies of others, without testifying directly. The complainant usually speaks first, but the GRC may change the order of presentation if doing so would facilitate the ultimate resolution of the dispute, unless substantial prejudice would result.

All decisions by a GRC are explained orally at the end of the hearing and reflected in writing, regardless of conciseness. A copy of the decision is given to every party, and a copy is kept by the GRC.

6.3.1 Appeal Procedures

Grievance Intake Channels and Response Times

Grievance intake channels and response times. A grievance may be lodged in person at the site Community Liaison Office or the hospital administration office; in writing using the grievance form available at those offices, at the offices of the local administration and at the County Health Department; by telephone or SMS to the project grievance line; by email to the project grievance address; or anonymously through the suggestion boxes maintained at the site entrance and at the local administration offices. Grievances may be lodged in English, Kiswahili or the local language, and assistance with completing the form is available on request for complainants who cannot read or write. Confidential and SEA/SH-sensitive complaints may be made directly to the designated female and male focal points, bypassing the site management chain entirely. Response times are: acknowledgement within three (3) working days of receipt; resolution at community level within fourteen (14) working days; resolution by the Project Grievance Redress Committee within thirty (30) working days; and determination by the County Grievance Redress Committee within forty-five (45) working days. Every grievance is entered in the grievance register on receipt, and the complainant is informed of the outcome in writing and of the right of appeal to the next tier and ultimately to the Environment and Land Court. Grievances are received by the designated Grievance Officer, Dr Caleb Wanambisi Watta, County Director of Health, Bungoma County (telephone/SMS +254 720 422834; email bcrhospital@gmail.com), whose details are set out in full below and are posted at the site entrance, the hospital notice board and the offices of the Sub-County and Ward administration.

Designated Grievance Office and Contact Details

The following office is designated to receive, register and coordinate the resolution of grievances under this Plan. These details are to be posted at the site entrance, at the hospital notice board and at the offices of the Sub-County and Ward administration, and are to be stated on the grievance form and in all community information materials.

Item	Detail
Designated Grievance Officer	Dr Caleb Wanambisi Watta

Item	Detail
Title	County Director of Health, Bungoma County
Telephone / SMS	+254 720 422834
Email	bcrhospital@gmail.com
Physical address	Administration Office, Kenya Medical Training College (KMTC), Sichei, Bungoma County
Hours	Monday to Friday, 08:00-17:00; written, SMS and email submissions accepted at any time
Anonymous submissions	Suggestion boxes at the site entrance and at the Sub-County and Ward administration offices, cleared weekly by the Community Liaison Officer
Confidential SEA/SH channel	Direct submission to the designated female or male focal point, bypassing the site management chain; contact details issued separately to affected communities and workers
Acknowledgement	Within three (3) working days of receipt
Resolution – community level	Within fourteen (14) working days
Resolution – Project Grievance Redress Committee	Within thirty (30) working days
Determination – County Grievance Redress Committee	Within forty-five (45) working days
Right of appeal	To the next tier and ultimately to the Environment and Land Court

The SEP provides the right of appeal by any complainant to the next grievance level committee (higher) if dissatisfied with the decision made by the committee where the complaint is registered. Grievances may be lodged at the site Community Liaison Office, at the hospital administration office, at the offices of the local administration, or through any of the intake channels set out in this section. The Community Liaison Officer attends grievance redress meetings and supports complainants in lodging and following up their grievances. There is no Resettlement Implementation Committee for this project.

7 MONITORING AND REPORTING MEASURES FOR THE SEP

7.1 *Monitoring Objectives*

Monitoring and evaluation are key components of the implementation of the SEP. The SEP is an important measure of helping to satisfy stakeholder concerns and promoting transparency through involving stakeholders in monitoring the implementation of SEP, RAP/ VMGP, and other plans such as Gender Action and individual livelihood restoration plans. Such participation, and the flow of information generated through this process, also encourages local stakeholders to take a greater degree of responsibility for their environment and welfare concerning the project and to feel empowered that they can do something practical to address issues that affect their lives. Participatory monitoring also strengthens relationships between the project team and its stakeholders. The SEP M&E plan is linked to the project M&E framework. In the short term, based on a monthly engagement calendar and the weekly plan, a performance assessment for planned vs.

actual engagement is compiled as part of the weekly and monthly progress reports.

The arrangements for implementing M&E are aligned with specific objectives of the SEP, including an assessment of:

- Whether the key stakeholders are fully engaged and there is general support for the Project; and
- Whether communities have buy-in and are supporting the Project activities.

The specific objectives of participatory monitoring are to determine:

- If affected individuals, households, and communities have the necessary information on issues that matter most to them, including stakeholder engagement and grievance resolution;
- If the National and County Governments, national agencies, CSOs, business entities, and other stakeholders feel they have been sufficiently involved and are adequately informed about the Project; and
- If information was disseminated before and during the implementation of the project activities.

Additionally, social performance monitoring is a key part of communication monitoring to ensure:

- Ongoing analysis of key issues identified through stakeholder engagement: in collaboration with the community liaison and safeguards officers, a summary of issues raised through every series of stakeholder engagement is turned into an action plan, as well as used to adapt messaging for future engagements, to target engagements differently, etc.
- Effectiveness of grievance and complaints management: in collaboration with the resettlement officer, monitor and analyze the frequency, type, and nature of complaints and grievances. One of the purposes of a grievance mechanism is to serve as an early warning tool that can identify issues before they become larger problem.

7.2 Monitoring Approaches

The SEP monitoring is done at three levels during the regular monitoring of the project at the implementation stage, by the PMU/PIU and by the African Development Bank (AfDB) during supervision and implementation support missions.

Methods used for the SEP monitoring include:

- Reviewing the SEP during regular consultative meetings through input and feedback from the participants;
- Reports of meetings held with the various key stakeholders; and
- Comparative assessment of stakeholder engagement before and after the roll-out of the SEP.

7.3 Monitoring and Evaluation Indicators

A list of proposed monitoring and performance/evaluation indicators includes, but is not limited, to:

- Number and place of public consultation meetings held at the different levels of engagement – national, county, and community;
- Type and number of materials produced and disseminated to the stakeholders;

- Number of stakeholders in the database; and
- Number of complaints received, resolved, and feedback given to the complainants.
- Number of stakeholders reached within the reporting period;
- Submission of weekly and monthly monitoring reports, including other frequency as required contractually; and Perceived satisfaction with the implementation of the SEP.

Indicators to Determine the Status of the SEP Implementation

Several indicators are used to determine the status of all activities implemented as presented in Table 6.1.

Table 6.1: SEP Implementation Indicators

Subject	Indicator	Variable
Consultation meetings	▪ Meetings held	▪ No. of meetings held ▪ Gender distribution of meeting participants ▪ List of participants ▪ Meeting minutes and reports
Communication materials	▪ Status reports ▪ Fact sheets ▪ FAQs ▪ Radio spots	▪ No. of status reports produced and disseminated ▪ No. of fact sheets produced and disseminated ▪ No. of FAQs produced and disseminated ▪ No. of radio spots produced and broadcast
Use of social media platforms	▪ SMS platform ▪ Email communication	▪ No. of participants on social media platforms ▪ No. of participants on the email list
Grievance Redress	▪ Cases received	▪ No. of Grievances ▪ Time taken to solve ▪ Channels used for redress

7.4 Reporting Requirements

The client (MOH) shall include a section on progress of SEP implementation in monthly and quarterly reports for submission to the financier.

REFERENCES

1. *African Development Bank(ADB)- handbook on stakeholder consultation and participation in ADB operation(2001)*
2. *Resettlement Policy Framework of African Development Bank (AfDB).*
3. *Constitution of Kenya, 2010.*
4. *Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets. IFC, 2*

APPENDIX 9: MEDICAL WASTE MANAGEMENT PLAN (MWMP)

Executive Summary

This Medical Waste Management Plan (MWMP) for the proposed Bungoma Level VI Teaching and Referral Hospital (BCTRH), a modern 700-bed tertiary healthcare facility located on Plot L.R No. Bokoli/Chwele 2458, Sichei Village, Mukuyuni Ward, Kabuchai Sub-County, Bungoma County, has been developed in line with the National Health Care Waste Management Strategic Plan for Kenya. The plan is intended to guide hospital management, healthcare workers, support staff, and relevant stakeholders in the proper planning, implementation, monitoring, and evaluation of healthcare waste management activities within the hospital and its surrounding community.

Level 6 hospitals provide highly specialized healthcare services, including inpatient and outpatient care, surgery, intensive care, laboratory services, radiology, maternity services, oncology treatment, mortuary services, and emergency care. These services generate significant quantities of hazardous and non-hazardous healthcare waste that require safe handling to minimize risks to human health and the environment.

The plan adopts a holistic approach to healthcare waste management through clear assignment of responsibilities, occupational health and safety measures, waste minimization strategies, segregation at source, safe transportation, treatment and disposal protocols, and documentation of best practices and innovations. It also aligns with national legal and regulatory requirements governing healthcare waste management in Kenya.

The management plan recognizes the importance of devolved healthcare services and emphasizes collaboration between the hospital administration, county government, national government agencies, private sector partners, and development stakeholders in ensuring sustainable healthcare waste management practices.

Key thematic areas addressed in this plan include:

- Strengthening the legal and regulatory framework to ensure compliance with national healthcare waste management standards.
- Standardization of waste segregation, collection, transportation, treatment, and disposal procedures across all hospital departments.
- Allocation of adequate financial resources to support implementation of healthcare waste management activities.
- Capacity building and continuous training of healthcare workers and waste handlers on safe healthcare waste management practices.
- Promotion of occupational health and safety measures to protect healthcare workers, patients, waste handlers, and the surrounding community.
- Adoption of environmentally friendly and sustainable waste treatment technologies suitable for Level 6 healthcare facilities.
- Establishment of monitoring and evaluation systems to track implementation progress, compliance levels, and performance indicators.

The plan further seeks to minimize environmental pollution, prevent transmission of infections, reduce occupational hazards, and promote sustainable waste management practices within the hospital environment.

Implementation of this Medical Waste Management Plan is expected to significantly improve healthcare waste handling practices, reduce risks associated with improper waste disposal, enhance environmental protection, and ensure compliance with national and international healthcare waste management standards over the implementation period.

INTRODUCTION

1.1 Healthcare Waste Overview

Waste from healthcare settings ranges from general waste such as paper and food remain, to infectious waste such as syringes and needles to highly infectious waste such as anatomical body parts to special waste such as mercury from broken thermometers and body imaging films. The term health-care waste includes all the waste generated within health-care facilities, research centres and laboratories related to medical procedures (WHO, 2014). In addition, the Level 6 Hospital generates various categories of healthcare waste from specialized medical services, emergency care, laboratory operations, surgical procedures, intensive care units, maternity services, radiology departments, pharmacies, mortuary services, and outpatient clinics. It also includes similar types of waste originating from minor and scattered sources within the hospital premises, outreach programmes, and home-based healthcare services such as home dialysis, self-administration of insulin, wound care, and rehabilitative care.

The classification of healthcare waste for the Medical Waste Management Plan has been adopted in accordance with the World Health Organization (WHO, 2014) guidelines and includes the following categories:

Classification of Healthcare Waste

1. Infectious Waste

This refers to waste suspected to contain pathogens such as bacteria, viruses, parasites, or fungi in sufficient concentration to cause disease. In a Level 6 Hospital, infectious waste includes: Contaminated dressings and bandages, Laboratory cultures and specimens, Waste from isolation wards, Blood-soaked materials, used gloves, masks, and gowns, Swabs and disposable medical supplies contaminated with body fluids

2. Pathological Waste

Pathological waste consists of tissues, organs, body parts, blood, and other body fluids removed during surgery, autopsy, or laboratory procedures. Examples include: Human tissues and organs, Placenta and fetal remains, Blood bags and body fluids and Anatomical waste from theatres and mortuary units

3. Sharps Waste

Sharps are items capable of causing cuts or puncture wounds and pose a high risk of infection transmission. These include: Needles and syringes, Scalpel blades, Lancets, Broken glass ampoules and Surgical blades and infusion sets

4. Pharmaceutical Waste

This category includes expired, unused, contaminated, or damaged pharmaceutical products and vaccines generated from pharmacies, wards, and laboratories. Examples include: Expired medicines, Antibiotics and vaccines, Contaminated drug containers and Discarded ampoules and vials

5. Chemical Waste

Chemical waste consists of discarded solid, liquid, and gaseous chemicals generated during cleaning, disinfection, laboratory activities, and maintenance procedures. These include: Laboratory reagents, Disinfectants and solvents, Formalin and x-ray processing chemicals, cleaning agents and detergents and Battery acids and heavy metals

6. Cytotoxic and Genotoxic Waste

These are highly hazardous wastes generated mainly from cancer treatment and research activities. Examples include: Cytotoxic drugs used in chemotherapy, Contaminated materials from oncology wards and Genotoxic laboratory waste

7. Radioactive Waste

Radioactive waste is generated from diagnostic and therapeutic procedures involving radioactive materials. It includes: Unused radioactive substances, Contaminated laboratory materials, Radioactive diagnostic equipment residues and Waste from nuclear medicine departments

8. Non-Hazardous or General Waste

This refers to waste that does not pose biological, chemical, radioactive, or physical hazards and is similar to domestic waste. Examples include: Paper and packaging materials, Food remains, Plastics and office waste and Sweeping dust and garden waste

9. Pressurized Containers

These include containers holding gases under pressure that may explode if punctured or exposed to heat. Examples include: Gas cylinders, Aerosol cans and Cartridge containers

The Level 6 Hospital shall ensure that all healthcare waste is properly segregated at the point of generation using color-coded containers in accordance with national guidelines. Proper collection, storage, transportation, treatment, and disposal procedures shall be implemented to minimize environmental pollution, occupational risks, and public health hazards associated with healthcare waste.

Objective

The Medical Waste Management Plan for the proposed Level 6 Hospital funded by the African Development Bank has been developed to strengthen healthcare waste management systems through the protection of patients, healthcare workers, waste handlers, the surrounding community, and the environment from hazards associated with healthcare risk waste.

The plan is aligned with national healthcare sector priorities, environmental safeguards, and international best practices in healthcare waste management. It supports the Government of Kenya's commitment toward improving healthcare infrastructure and delivery systems while ensuring environmentally sustainable healthcare operations. The project further complements the objectives of development partners supporting health sector strengthening initiatives through promotion of safe and efficient healthcare waste management practices.

The Medical Waste Management Plan provides a framework for reinforcing institutional capacity within the Level 6 Hospital and strengthening healthcare waste management systems through adoption of Best Available Technologies (BAT) and Best Environmental Practices (BEP). The plan focuses on safe segregation, collection, transportation, storage, treatment, and disposal of healthcare waste generated from specialized services including surgical theatres, laboratories, oncology units, radiology departments, intensive care units, maternity wards, pharmacies, emergency departments, and mortuary services. Proper implementation of the Medical Waste Management Plan will significantly contribute toward the delivery of quality healthcare services while safeguarding public health and the environment. The plan is also expected to support the achievement of the Sustainable Development Goals (SDGs), particularly:

SDG 3: Good Health and Well-Being

SDG 6: Clean Water and Sanitation

SDG 12: Responsible Consumption and Production

SDG 13: Climate Action

The plan recognizes that all efforts aimed at improving healthcare service delivery must also prioritize environmental protection and occupational safety. Effective healthcare waste management is therefore critical in preventing the spread of communicable diseases, minimizing occupational injuries, controlling environmental pollution, and reducing public exposure to hazardous healthcare waste.

Implementation of the Medical Waste Management Plan requires collaboration among various stakeholders including:

- National Government ministries and regulatory agencies
- County Government health departments
- Hospital management and healthcare workers
- Private sector waste management service providers
- Development partners and donor agencies
- Professional councils and healthcare associations
- Community representatives and non-governmental organizations

Harmonization and enforcement of standardized healthcare waste management systems across all departments within the Level 6 Hospital is essential for effective implementation of the plan. The support provided by development partners, including the African Development Bank, together with other international agencies such as the World Health Organization and the United Nations Development Programme, plays a critical role in providing financial and technical assistance necessary for strengthening healthcare waste management infrastructure and capacity.

For many years, healthcare waste management has received inadequate attention despite being an important component of infection prevention and control, occupational health and safety, environmental conservation, and sustainable healthcare delivery. This Medical Waste Management Plan therefore seeks to establish effective mitigation measures to reduce risks associated with hazardous healthcare waste and ensure compliance with applicable environmental and public health standards throughout the operation of the Level 6 Hospital.

2. Roles and Responsibilities

Effective implementation of the Medical Waste Management Plan in a Level 6 Hospital requires a coordinated approach involving hospital management, healthcare workers, waste handlers, department heads, and external service providers. Clearly defined roles and responsibilities ensure accountability, compliance with legal requirements, and efficient management of healthcare waste throughout its lifecycle.

2.1 Hospital Management

The hospital management bears the overall responsibility for implementation and supervision of the Medical Waste Management Plan within the Level 6 Hospital. Due to the large scale and specialized nature of services offered at Level 6 facilities, management must ensure adequate institutional, technical, and financial support for healthcare waste management activities.

The responsibilities of hospital management shall include:

- Providing adequate financial and material resources for healthcare waste management activities.
- Establishing a Healthcare Waste Management Committee to oversee implementation of the waste management plan.
- Ensuring compliance with national environmental laws, public health regulations, occupational safety standards, and hospital policies.
- Procuring waste segregation containers, safety boxes, PPE, transportation trolleys, treatment technologies, and emergency response equipment.
- Supporting continuous staff training and awareness programs on healthcare waste management and infection prevention.
- Facilitating periodic waste audits, inspections, and monitoring activities.
- Ensuring availability of licensed waste treatment and disposal facilities or contractors where applicable.
- Promoting environmentally sustainable waste management practices through adoption of Best Available Technologies (BAT) and Best Environmental Practices (BEP).

2.2 Waste Management Officer

The WMO will be responsible for the day-to-day operation and monitoring of the waste management system. It is therefore essential that he or she has direct access to all members of staff. He or she should be directly responsible to the County Public Health officer. He or she is responsible for the county hospitals waste management officers stationed in health facilities and work in close liaison with other heads of preventive and promotive health services at the county, notable is the sanitation officer, food quality and control officers

Specific responsibilities include:

- Supervising waste segregation, collection, transportation, treatment, and disposal activities.
- Conducting routine inspections and audits in all hospital departments.
- Monitoring waste handling practices and ensuring compliance with color-coding systems.
- Maintaining records on waste generation, transportation, treatment, and disposal.
- Coordinating waste minimization and recycling programs.
- Investigating waste-related incidents, accidents, and spillages.
- Ensuring waste storage areas remain clean, secure, and compliant with safety standards.
- Liaising with environmental agencies, county authorities, and licensed waste contractors.
- Maintain documentation of all reported cases of harm and complains and redress mechanisms both by health workforce and community.

2.3 Department Heads

Department heads are responsible for ensuring proper implementation of healthcare waste management procedures within their respective units such as laboratories, theatres, wards, radiology departments, oncology units, pharmacies, and intensive care units.

Their responsibilities include:

- Supervising healthcare workers to ensure proper waste segregation at source.
- Monitoring compliance with waste management procedures and PPE use.
- Ensuring waste containers are available and properly labeled within departments.
- Reporting shortages, incidents, or equipment failures related to waste management.
- Supporting departmental staff training and awareness initiatives.

2.4 Healthcare Workers

Healthcare workers generate most of the healthcare waste within the Level 6 Hospital and therefore play a critical role in ensuring proper waste management practices.

Their responsibilities include:

- Segregating waste correctly at the point of generation.
- Placing waste in designated color-coded containers.
- Using appropriate PPE during handling of infectious materials.
- Minimizing waste generation where possible.
- Reporting needle-stick injuries, spillages, and unsafe practices immediately.
- Adhering to infection prevention and occupational safety procedures.

2.5 Cleaning Staff and Waste Handlers

Cleaning personnel and waste handlers are directly involved in collection, transportation, and temporary storage of healthcare waste and are therefore highly exposed to occupational risks.

Their responsibilities include:

- Collecting and transporting waste safely using designated equipment.
- Wearing appropriate PPE at all times during waste handling.
- Cleaning and disinfecting waste containers, trolleys, and storage areas regularly.
- Ensuring waste bags are sealed properly before transportation.
- Reporting damaged containers, spillages, or unsafe conditions immediately.
- Maintaining cleanliness and hygiene of waste storage facilities

3 Waste Segregation Procedure

Waste segregation is one of the most important components of healthcare waste management in a Level 6 Hospital. Proper segregation minimizes environmental contamination, reduces treatment costs, prevents infection transmission, and enhances occupational safety.

Healthcare waste shall be segregated at the point of generation using standardized color-coded containers in accordance with national healthcare waste management guidelines.

Waste Segregation Categories

Waste type	Container Colour
General waste	Black
Infectious waste	Yellow
Sharp waste	Yellow Safety box
Pharmaceutical waste	Brown
Chemical Waste	Brown
Radioactive waste	Specialized lead-lined containers

Segregation Requirements

The following procedures shall be followed:

- Waste bins shall be clearly labeled and strategically placed in all departments.
- Sharps containers shall be puncture-proof, leak-proof, and tamper-resistant.
- Waste containers shall not be filled beyond three-quarters capacity to prevent overflow and injuries.
- Infectious and non-infectious wastes shall never be mixed after segregation.
- Posters and signage illustrating segregation procedures shall be displayed in all waste generation areas.
- Segregation compliance shall be monitored routinely through inspections and audits.

4. Waste Collection and Internal Transportation

Collection Frequency

Waste collection schedules shall be designed to prevent accumulation and reduce infection risks:

- Infectious waste shall be collected daily or more frequently where volumes are high.
- General waste shall be collected at least once daily.
- Sharps containers shall be removed immediately once they reach three-quarters capacity.
- High-risk departments such as theatres, laboratories, and isolation wards may require more frequent collection schedules.

Collection Procedure

Waste handlers shall:

- Wear appropriate PPE including heavy-duty gloves, masks, aprons, and safety boots.
- Seal waste bags securely before removal from departments.
- Use designated color-coded trolleys or carts for transportation.
- Follow designated collection schedules and routes.
- Avoid manual compression of waste bags.

Internal Transportation Rules

To minimize risks during internal transportation:

- Waste shall never be dragged along floors.
- Separate routes shall be designated for waste transportation where possible.
- Waste trolleys shall be cleaned and disinfected regularly.
- Manual handling shall be minimized through use of wheeled transport systems.
- Waste transportation shall avoid patient care and food preparation areas where possible.

4.1 Temporary Waste Storage

Healthcare waste awaiting treatment or disposal shall be stored in secure temporary storage areas designed to minimize environmental and public health risks.

Requirements for Waste Storage Areas

Storage facilities shall:

- Be secure and access-controlled.
- Be well ventilated and easy to clean.
- Have impermeable floors with proper drainage systems.
- Be protected from pests, rodents, rainwater, and scavengers.
- Be clearly labeled with warning signs and hazard symbols.
- Have adequate lighting and water supply for cleaning purposes.

Storage Duration

- Infectious waste shall not be stored beyond 24–48 hours depending on climatic conditions.
- Pathological waste shall be refrigerated if immediate treatment or disposal is not possible.
- Radioactive waste shall be stored according to radiation safety requirements.

4.2 Waste Treatment and Disposal

Healthcare waste generated within the Level 6 Hospital shall undergo treatment and disposal using environmentally sound and legally approved methods.

Infectious Waste

Treatment methods may include:

- Autoclaving for sterilization of infectious materials.
- Microwave disinfection technologies where available.

Sharps Waste

Sharps shall:

- Be collected in safety boxes immediately after use.
- Undergo treatment through encapsulation.
- Never be manually sorted or reused.

Pharmaceutical Waste

Pharmaceutical waste management shall include:

- Returning expired medicines to suppliers where applicable.
- Proper documentation and inventory control.

Chemical Waste

Chemical waste shall:

- Be neutralized where appropriate.
- Be handled according to Material Safety Data Sheet (MSDS) requirements.

Pathological Waste

Pathological waste shall be disposed through:

- High-temperature Microwave
- Approved pathological burial methods where applicable.

General Waste

General waste shall:

- Be recycled where feasible.
- Be transported to licensed municipal disposal sites.

Radioactive Waste

Radioactive waste shall:

- Be managed in accordance with national radiation protection regulations.
- Be stored safely to allow radioactive decay where necessary.
- Be handled only by authorized personnel.

5 Waste Minimization Measures

The Level 6 Hospital shall implement waste minimization strategies aimed at reducing waste generation and environmental pollution.

Measures shall include:

- Rational procurement and inventory management practices.
- Use of reusable materials where safe and appropriate.
- Digitalization of records to reduce paper waste.
- Recycling programs for plastics, paper, and cardboard.
- Reduction of pharmaceutical wastage through stock monitoring systems.

Occupational Health and Safety Measures

Healthcare waste management activities expose workers to biological, chemical, and physical hazards. Appropriate occupational health and safety measures are therefore essential.

PPE Requirements

Personnel handling healthcare waste shall use:

- Heavy-duty gloves
- Face masks or respirators
- Protective aprons or gowns
- Safety boots
- Eye protection where necessary

Hygiene Practices

The hospital shall enforce:

- Hand washing after waste handling.
- Prohibition of eating or drinking in waste handling areas.
- Vaccination of waste handlers against Hepatitis B and Tetanus.

Incident Management

- Needle-stick injuries shall be reported immediately.
- Spill response procedures shall be implemented promptly.
- Exposure incidents shall be documented and investigated thoroughly.

5.1 Spill Management Procedure

Infectious Waste Spills

The following procedures shall be followed:

- Restrict access to the spill area.
- Wear appropriate PPE.
- Cover spill using absorbent materials.
- Apply approved disinfectant solution.
- Collect contaminated materials using suitable tools.
- Dispose waste appropriately.
- Clean and disinfect the affected area thoroughly.

Chemical Spills

Chemical spill management shall include:

Following MSDS guidance.

- Using chemical spill kits.
- Evacuating affected areas where necessary.
- Reporting major spills immediately.

5.2 Training and Awareness

Continuous staff training is essential for effective implementation of the Medical Waste Management Plan.

Training programs shall cover:

- Waste segregation procedures
- Infection prevention and control
- Safe waste handling practices
- Emergency response procedures
- Proper use of PPE
- Spill management procedures

Training shall be conducted:

- During staff induction
- Periodically (at least annually)
- Whenever procedures or regulations are updated

Monitoring and Record Keeping

The hospital shall maintain comprehensive records including:

- Waste quantities generated
- Transportation manifests
- Waste treatment certificates
- Incident and accident reports
- Staff training attendance records

- Waste inspection and audit reports
- Regular monitoring activities shall include:
- Segregation compliance inspections
- Storage facility inspections
 - Contractor performance evaluations
 - Environmental monitoring where necessary

Emergency Preparedness

The Level 6 Hospital shall establish emergency preparedness measures for healthcare waste-related emergencies.

Potential emergencies include:

- Fire outbreaks at waste storage facilities
- Chemical spills
- Infectious disease outbreaks
- Radiation incidents
- Waste transportation accidents

Emergency response equipment shall include:

- Fire extinguishers
- Spill response kits
- First aid kits
- Emergency showers and eyewash stations
- Emergency communication systems

Regular emergency drills and simulations shall be conducted to enhance preparedness and response capacity among staff and emergency response teams.

6. Environmental and Regulatory Compliance

The Level 6 Hospital shall ensure that all healthcare waste management activities are undertaken in full compliance with applicable national environmental, public health, occupational safety, and healthcare regulations. Compliance with legal and regulatory requirements is essential in minimizing environmental pollution, preventing disease transmission, protecting healthcare workers and the public, and ensuring sustainable healthcare waste management practices.

Due to the large volume and hazardous nature of healthcare waste generated in a Level 6 Hospital, strict adherence to national laws, standards, and guidelines governing healthcare waste management shall be maintained throughout waste generation, segregation, storage, transportation, treatment, and final disposal processes.

The hospital shall establish an internal compliance monitoring system to ensure that all healthcare waste management operations conform to legal obligations and recognized best environmental practices.

Compliance with National Environment Management Authority (NEMA) Regulations Waste Management 2024

The hospital shall comply with all environmental regulations and guidelines issued by the National Environment Management Authority relating to healthcare waste management and environmental protection.

Compliance requirements shall include:

- Obtaining all necessary environmental licenses, permits, and approvals required for waste treatment, transportation, storage, and disposal activities.
- Ensuring proper segregation, collection, transportation, treatment, and disposal of healthcare waste in accordance with approved environmental standards.
- Conducting Environmental Impact Assessments (EIA) and environmental audits where required for waste treatment facilities such as incinerators and autoclaves.
- Preventing environmental contamination of air, soil, and water resources arising from healthcare waste handling activities.
- Ensuring emissions from waste treatment technologies comply with prescribed air quality and emission standards.
- Managing hazardous waste through licensed waste handlers and disposal facilities approved by NEMA.
- Maintaining records of waste generation, transportation manifests, treatment certificates, and disposal records for regulatory review.
- Implementing pollution prevention and waste minimization strategies to reduce environmental impacts.

- Reporting environmental incidents, spillages, or accidents to the relevant authorities where required.

Compliance with Directorate of Occupational Safety and Health Services (DOSHS) Requirements 2007

The hospital shall comply with occupational safety and health requirements established by the Directorate of Occupational Safety and Health Services to protect healthcare workers, waste handlers, contractors, patients, and visitors from occupational hazards associated with healthcare waste management.

Occupational safety compliance measures shall include:

- Provision and mandatory use of appropriate Personal Protective Equipment (PPE) for all personnel involved in waste handling activities.
- Conducting occupational risk assessments for waste handling operations and treatment facilities.
- Ensuring safe handling, transportation, storage, and treatment of hazardous healthcare waste.
- Establishing procedures for reporting and management of needle-stick injuries, chemical exposure, infections, burns, and other occupational incidents.
- Providing vaccination programs for healthcare workers and waste handlers against Hepatitis B, Tetanus, and other occupationally related infections.
- Conducting regular staff training on occupational health and safety procedures.
- Installing emergency response equipment including first aid kits, fire extinguishers, eyewash stations, and spill response kits.
- Maintaining safe working conditions within waste storage areas, treatment facilities, and transportation systems.
- Ensuring proper ventilation, lighting, signage, and restricted access in hazardous waste handling areas.
- Conducting routine workplace inspections and safety audits to identify and address potential hazards.

The hospital shall also establish an Occupational Health and Safety Committee responsible for monitoring compliance and promoting a culture of safety within the facility.

Compliance with the Public Health Act

The Level 6 Hospital shall comply with the provisions of the Public Health Act relating to sanitation, infection prevention, disease control, and protection of public health.

Public health compliance measures shall include:

- Maintaining hygienic conditions in all healthcare waste generation, storage, transportation, and treatment areas.
- Preventing accumulation of waste that may attract disease vectors such as rodents, insects, and scavengers.
- Ensuring infectious waste is handled and disposed of safely to prevent spread of communicable diseases.
- Maintaining proper drainage and wastewater management systems within waste handling areas.
- Implementing infection prevention and control measures in accordance with national healthcare guidelines.
- Ensuring healthcare waste does not contaminate food preparation areas, water sources, public spaces, or patient care environments.
- Conducting regular cleaning and disinfection of waste containers, transportation trolleys, and storage facilities.
- Monitoring healthcare waste management practices to prevent public nuisance and environmental health risks.
- Supporting disease surveillance and emergency response measures during outbreaks and public health emergencies.

The hospital shall work closely with county public health officers to ensure regular inspections and compliance with public health requirements.

The hospital shall further ensure that all outsourced waste management contractors possess valid NEMA licenses and comply with national environmental regulations.

Compliance with the Environmental Management and Coordination Act (EMCA) 2003

The hospital shall comply with the provisions of the Environmental Management and Coordination Act, which serves as the principal legal framework for environmental management in Kenya.

Compliance under EMCA shall include:

- Integration of environmental protection measures into all healthcare waste management activities.
- Ensuring environmentally sound treatment and disposal of hazardous healthcare waste.
- Prevention and control of pollution arising from waste treatment technologies such as incinerators.
- Proper management of wastewater, emissions, ash residues, and chemical waste.

- Conducting environmental audits and submitting reports as required by law.
- Promoting sustainable resource use and waste minimization practices.
- Ensuring safe disposal of waste without causing adverse environmental impacts.
- Adhering to prescribed standards for noise, air quality, water quality, and hazardous waste management.
- Implementing corrective measures for any identified environmental non-compliance issues.

The hospital shall further establish internal environmental monitoring programs to assess compliance levels and identify opportunities for continuous improvement in healthcare waste management practices.

Institutional Compliance and Continuous Improvement

To strengthen regulatory compliance, the Level 6 Hospital shall:

- Develop and implement Standard Operating Procedures (SOPs) for healthcare waste management.
- Conduct regular internal compliance audits and inspections.
- Maintain updated legal and regulatory registers.
- Appoint designated officers responsible for environmental and occupational safety compliance.
- Facilitate continuous staff training on legal and regulatory obligations.
- Collaborate with regulatory agencies, county governments, and development partners.
- Allocate adequate financial and technical resources for compliance activities.
- Review and update the Medical Waste Management Plan periodically to align with emerging regulations, technologies, and best practices.

Through effective environmental and regulatory compliance, the Level 6 Hospital will promote safe healthcare waste management practices, reduce environmental and public health risks, strengthen occupational safety, and ensure sustainable healthcare service delivery.

7. MONITORING AND EVALUATION

The hospital shall establish a monitoring and evaluation framework to assess implementation of the Medical Waste Management Plan. Periodic audits and reviews shall be conducted to improve healthcare waste management performance. Monitoring is the process of regularly reviewing achievements towards the goal. To carry out monitoring and evaluation activities, critical issues are; the goals, objectives, targets, inputs, outputs and indicators must be clearly defined. An effective monitoring and evaluation system needs monitoring structures with appropriate staff, a good information network system, and appropriate reporting formats/ registers and procedures. The HCW expected to be delivered at the various levels of services provision provide the benchmarks of expected outputs. Fundamentally, monitoring should be established from the beginning as part of the planned activities. Monitoring involves comparing what is happening with what was planned. On the other hand, evaluation asks whether we succeeded or failed to meet stated goals, whether we used resources appropriately, and whether our actions will have long-term results. The aspects to be monitored and evaluated on health care waste management should be identified based on the injection safety and medical waste management policy guidelines and then National Environment Management Authority (NEMA) standards. Information on key aspects of the implementation process of the action plan of HCWM. This process shall provide the understanding of how activities are progressing. Monitoring should provide information for incremental planning and for regular feedback about the progress of the project to stakeholders, implementers and the health facilities benefiting from the Action Plan. On the other hand, process evaluation is the periodic assessment of the value of what a project or programme has achieved in relation to planned activities and overall objectives and can help in providing solutions that can then be implemented. Process evaluations for the waste management should be conducted at strategic intervals in planned five of the project lifecycles. Process monitoring and evaluation therefore are often seen as the most important type of monitoring and evaluation activity for project managers, as it helps to identify successful aspects that can be continued or expanded as well as deficiencies that can be reworked and the means of addressing them. The M & E framework encompassing all required tools for HCWM in level 6 hospital should therefore be developed and disseminated to all counties and Health records Information Offices (HRIOs).

In this context therefore, it is important for the National Steering Committee for HCWM to;

- Develop monitoring and evaluation plan and tools that can be integrated into existing M & E systems.
- Determine indicators of achievement.
- Develop a tool for auditing.
- Develop an oversight plan in a devolved system of governance.
- Develop a simple reporting format on what to monitor to create a feedback process.

Determine and execute a plan for follow-up assessment to measure improvements against earlier assessments. Stakeholder participation in the analysis and interpretation of findings from process evaluation, including the formulation of conclusions and linkages with future plans, is critical to ensure that results become accepted and used.

When the entire required framework will be in place, it will be critical to ensure that all the indicators be integrated into the National Health Management Information System (HMIS). This therefore requires that the Unit responsible for HCWM both at the National and County levels coordinates closely with HMIS.

7.1 Operational Research

Operational research is applying analytical methods to researches and surveys in health care waste and other wastes in order to inform decision makers in HCWM. This is very critical as it helps inform policy and practice in HCWM. It is therefore recommended that the National Steering Committee on HCWM identifies operational research gaps and encourages research and training institutions to prioritize. Critical also will be to mobilize resources both from public and [private stakeholders for purposive research and surveys of key areas across the waste management stream.

Research areas will include;

- Air emissions from incinerators to surrounding people and environment
- Effect of bottom ash from incineration to the surrounding environment
- Non burn technologies effectiveness,
- Rapid assessment on gaps in HCWM at Hospital.

8.CONCLUSION

The Medical Waste Management Plan provides a comprehensive framework for the safe and environmentally sound management of healthcare waste generated by the proposed Level 6 Hospital funded by the African Development Bank. Proper implementation of this plan will minimize environmental pollution, reduce occupational and public health risks, strengthen infection prevention and control measures, and ensure compliance with national and international healthcare waste management standards.

The hospital management, healthcare workers, waste handlers, contractors, and regulatory agencies shall work collaboratively to ensure effective implementation and continuous improvement of healthcare waste management practices within the facility.

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APPENDIX 10: HOSPITAL EMERGENCY RESPONSE PLAN (ERP)

EXECUTIVE SUMMARY

The Emergency Response Plan (ERP) for Bungoma Level VI Teaching and Referral Hospital (BCTRH) provides a structured framework for preparedness, response, recovery, and continuity of critical hospital operations during emergencies and disasters. The plan establishes coordinated procedures to enable rapid and effective response to incidents that may disrupt healthcare delivery, threaten life, damage infrastructure, or compromise the hospital's ability to fulfill its mandate.

Bungoma Level VI Teaching and Referral Hospital (BCTRH) is being established in Mukuyuni Ward, Kabuchai Sub-County, Bungoma County, to serve the Western Kenya Region and surrounding populations in East Africa. The facility is intended to function as a national referral hospital, regional trauma centre, medical teaching institution, and research hub. The hospital will also play a critical role in reducing pressure on referral facilities and improving access to specialized healthcare services within the Western Kenya region.

The hospital is strategically positioned along a major transport corridor associated with frequent road traffic accidents and mass casualty events. Historical incidents in the Bungoma–Malaba and Bungoma–Webuye corridors have resulted in significant morbidity and mortality due to limited emergency and specialized response capacity. Consequently, this ERP places particular emphasis on trauma response, mass casualty management, disease outbreak preparedness, and continuity of specialized services.

The plan outlines emergency governance structures, command systems, risk identification, communication procedures, resource mobilization strategies, evacuation arrangements, and stakeholder coordination mechanisms. It applies to all hospital staff, contractors, students, patients, and external partners engaged in hospital operations. This document applies to all BCTRH staff, contractors, students, volunteers, patients, visitors, and external response partners. The ERP shall be reviewed periodically and updated to align with emerging risks, operational changes, national policies, and lessons learned from emergencies and simulation exercises.

CHAPTER 1: INTRODUCTION, POLICY FRAMEWORK AND HOSPITAL PROFILE

1.1 Purpose of the ERP

The purpose of this Emergency Response Plan is to:

1. Protect life, property, and the environment.
2. Maintain continuity of critical healthcare services.
3. Establish a standardized emergency management structure.
4. Ensure rapid and coordinated emergency response.
5. Strengthen preparedness for mass casualty and outbreak scenarios.
6. Ensure compliance with national and international emergency management standards.
7. Facilitate rapid recovery and restoration of operations.

1.2 Scope

This ERP applies to all hospital operations, including:

- Clinical services
- Emergency and trauma care
- Diagnostic and laboratory services
- Research and teaching functions
- Utilities and engineering systems
- Security operations
- Waste management systems
- External coordination and referral functions

The plan addresses both internal and external emergencies including:

Emergency Category	Examples
Natural Hazards	Flooding, drought, storms, disease outbreaks
Technological Hazards	Fire, power failure, ICT failure, gas leak
Human-Caused Hazards	Mass casualty incidents, terrorism, unrest
Healthcare Emergencies	Patient surges, pandemics, supply shortages
Environmental Emergencies	Pollution incidents, wastewater failure

1.3 Hospital Profile

1.3.1 Facility Overview

Bungoma Level VI Teaching and Referral Hospital (BCTRH) is a proposed tertiary healthcare institution under the Ministry of Health through the State Department for Medical Services. The facility will be

located in Mukuyuni Ward, Kabuchai Sub-County, Bungoma County. The hospital has been designed to provide advanced referral services, emergency care, specialized treatment, teaching, research, and training services for the Western Kenya region and neighbouring East African countries.

The Western Kenya region has experienced substantial population growth and increasing demand for specialized healthcare services. Current projections indicate a service population exceeding 3.7 million people within the coming years. Existing healthcare facilities within the region lack adequate capacity to provide specialized emergency and trauma care, resulting in frequent referrals to referral facilities outside the region.

The hospital's strategic location along the Trans-Africa Highway (Mombasa-Kampala corridor) linking Western Kenya to neighbouring countries places it at the center of a high-risk environment characterized by frequent traffic-related emergencies and mass casualty incidents. Major highways including the Bungoma–Malaba and Bungoma–Webuye routes have recorded severe accidents involving large numbers of fatalities and injuries.

Key infrastructure will include:

- Multi-storey clinical complex
- Two basement levels
- Six upper clinical floors
- ICU/HDU and Neonatal ICU
- Trauma and emergency complex
- Medical teaching and simulation facilities
- ICT and data centre
- Wastewater treatment plant
- Medical gas systems
- NEMA-licensed incineration system
- Approximately 300 parking bays

1.3.2 Clinical Services

Upon operationalization, the hospital will provide:

- Trauma and Emergency Medicine
- Surgery and Neurosurgery
- Orthopaedics
- Internal Medicine
- Obstetrics and Gynaecology
- Oncology
- Nephrology and Dialysis
- Burns and Critical Care
- Psychiatry
- Paediatrics and Neonatal Care
- Cardiothoracic Services

1.3.3 Strategic Role

BCTRH will serve as:

- Regional trauma centre
- Referral facility for Western Kenya counties
- Teaching and research institution
- Public health emergency support facility
- Regional specialist referral hub

1.4 Guiding Principles

The ERP shall operate under the following principles:

- **All-Hazards Approach:** A single scalable emergency management structure shall apply across all hazards.
- **Life Safety Priority:** Protection of life shall take precedence over property and operational considerations.
- **Continuity of Care:** Critical healthcare services shall continue during emergencies.
- **Interoperability:** The ERP shall align with county, national, and regional emergency systems.
- **Accountability:** All emergency actions shall be documented and reviewed.
- **Environmental Responsibility:** Emergency operations shall comply with NEMA environmental requirements.

1.5 Legal and Regulatory Framework

This Emergency Response Plan has been developed within the legal and policy framework governing health service delivery, emergency preparedness, occupational safety, and disaster management in Kenya. The establishment of Bungoma Level VI Teaching and Referral Hospital (BCTRH) aligns with national commitments to improve accessibility, equity, and responsiveness in healthcare delivery while strengthening emergency preparedness and response systems.

This ERP additionally adopts internationally recognized principles of disaster preparedness and hospital incident management to ensure structured and coordinated emergency response.

The ERP derives authority from the following frameworks:

Framework	Relevance
Constitution of Kenya (2010)	Right to health and emergency protection
Kenya Health Act, 2017	Health service obligations
Public Health Act	Disease control and outbreak response
Occupational Safety and Health Act (OSHA), 2007	Occupational safety and emergency obligations
Environmental Management and Coordination Act (EMCA), 1999	Environmental compliance
MOH EDRM Policy	Emergency preparedness framework
WHO Safe Hospitals Framework	Hospital resilience standards
NEMA License Conditions	Environmental emergency obligations
Disaster Risk Management frameworks	Building community resilience against recurrent hazards and disasters

Framework	Relevance
Ministry of Health Emergency Preparedness Guidelines	Shift focus from reactive crisis management to proactive, multi-hazard disaster risk reduction
National Infection Prevention and Control Guidelines	Outline mandatory, evidence-based practices for all healthcare facilities to prevent Healthcare-Associated Infections (HAIs)

CHAPTER 2: HAZARD VULNERABILITY ASSESSMENT (HVA)

The proposed hospital recognizes that emergencies may arise from internal and external factors capable of disrupting healthcare operations. Hazard identification and risk assessment provide the basis for preparedness planning and resource allocation.

The risk environment for Bungoma Level VI Teaching and Referral Hospital (BCTRH) is significantly influenced by its regional referral role, trauma center mandate, teaching functions, and location along major transport routes.

Based on its geographical location, the proposed hospital is expected to receive large numbers of casualties resulting from recurrent road accidents occurring along major transport corridors serving the Western Kenya and East African region. Historical incidents have involved multiple fatalities and injuries requiring emergency intervention.

2.1 HVA Methodology

The hospital shall use a structured Hazard Vulnerability Assessment model based on:

Risk Score = Probability × Impact × Preparedness Gap

The facility's hazard ranking relies on the Kaiser Permanente Hazard Vulnerability Assessment scoring model. Each identified hazard is evaluated mathematically using specific parameters:

$$\text{Relative Risk (\%)} = \frac{\text{Probability} \times \text{Severity}}{\text{Max Possible Risk}} \times 100$$

Where Severity is calculated as:

Severity = Human Impact + Property Impact + Business Impact – Preparedness Gap

2.2 Hazard Inventory for BCTRH

2.2.1 Natural Hazards

- **Flooding:** Site drainage and wastewater pooling risks linked to the sloping terrain of the Mukuyuni area.
- **Disease Outbreaks:** Epidemic surges of cholera, malaria, typhoid, COVID-19/novel pathogens, and other infectious diseases prevalent in the Western Kenya region. Bungoma County's proximity to cross-border trade routes (Kenya-Uganda highway) elevates risk of imported disease events.
- **Drought & Water Scarcity:** Extended dry seasons creating localized utility stress and increasing dependence on borehole systems.
- **Seismic Activity:** Minor to moderate tectonic displacements linked to the geological context of the Great Rift Valley.

2.3 Technological & Industrial Hazards

- **Fire:** Multi-storey building containment risks involving localized medical gases, fuel storage areas, and incinerator infrastructure.
- **Explosion:** Over-pressurization or ignition within the medical gas manifold rooms, bulk LPG storage tanks, or generator fuel supply tanks.
- **HAZMAT / Chemical Spills:** Uncontrolled releases of laboratory reagents, bulk pharmacy cytotoxics, generator fuel, or hazardous incinerator ash managed under NEMA Conditions 2.4 and 3.9.
- **Power Failure:** Standby generator mechanical or ATS electrical failure, directly threatening critical life-support systems across the ICU, theatres, NICU, and the vaccine cold chain.
- **Water Supply Failure:** On-site borehole pump failure or municipal supply line interruptions.
- **Medical Gas Failure:** Technical line dropouts or mechanical plants failure affecting centralized oxygen

pipings networks.

- **HMIS / ICT Failure:** Server crashes or network downtime affecting electronic patient medical records, tracking, and diagnostics.
- **Effluent Treatment Plant Failure:** Biological or mechanical breakdown of the bio-digester, posing environmental contamination risks and NEMA license violations.
- **Incinerator Malfunction:** Flue gas emissions breaches or ash pit containment failures under NEMA Conditions 3.4 through 3.9.

2.4 Human-Caused & Complex Hazards

- **Mass Casualty Incident (MCI):** Multi-vehicle collisions and major traffic accidents along the high-risk Bungoma corridor, causing a sudden influx of trauma patients.
- **Civil Unrest:** Proximity to the transport corridor and Bungoma town, exposing the facility to sudden crowd control issues and security demands.
- **Active Security Threats:** Unauthorized armed individuals, active intruders, or hostage situations within the primary facility.
- **Terrorism:** Explicit bomb threats or targeted explosive devices directed at public infrastructure.

2.5 Healthcare-Specific Hazards

- **Patient Surge:** Sudden clinical demands that exceed the physical 700-bed baseline capacity.
- **Healthcare Worker Strike:** Organized labor actions leading to mass staff absenteeism.
- **Blood Supply Shortage:** Sudden depletion of the on-site blood bank during prolonged multi-casualty trauma events.
- **Supply Chain Disruption:** KEMSA logistics failures resulting in stock-outs of essential pharmaceuticals and surgical consumables.
- **Infection Control Failure:** Major outbreaks of healthcare-associated infections (HAIs) within vulnerable clinical areas.
- **Equipment Failure:** Simultaneous failures of life-support hardware, including mechanical ventilators, dialysis machines, or core imaging infrastructure.

Assessment considerations include:

- Human impact
- Operational disruption
- Infrastructure damage
- Environmental consequences
- Regulatory implications
- Recovery complexity

2.6 Priority Hazard Inventory

2.6.1 Mass Casualty Incidents (Highest Priority)

Due to BCTRH's proximity to the Bungoma–Webuye transport corridor, mass casualty incidents (MCIs) represent the highest operational risk.

Potential consequences include:

- Overwhelming trauma capacity
- Blood shortages
- ICU saturation
- Mortuary overload
- Media pressure
- Family reunification challenges

2.6.2 Fire and Explosion Risks

Key fire risk areas include:

- Medical gas manifolds
- Incinerator systems
- Generator rooms
- Fuel storage facilities
- Electrical distribution rooms
- Laboratories

2.6.3 Infectious Disease Outbreaks

High-risk public health threats include:

- Cholera
- Rift Valley Fever
- COVID-like respiratory outbreaks
- Viral hemorrhagic fevers
- Healthcare-associated infections

2.6.4 Utility Failure Risks

Critical utility threats include:

- Power outages
- Medical gas interruption
- Water shortage
- ICT downtime
- Wastewater system failure

2.6.5 Security Threats

Potential incidents include:

- Armed intruder events

2.6.6 Civil unrest

- Terror incidents
- Crowd violence
- Cybersecurity attacks

2.7 Risk Priority Matrix

Hazard Type	Probability (1-3)	Human Impact (1-3)	Operational Impact (1-3)	Preparedness Gap (1-3)	Risk Score (P×S)	Priority Ranking
Road Traffic MCI	3	3	3	2	21	High (Priority 1)
Facility Fire	1	3	3	2	16	High (Priority 2)
Power Failure	2	3	3	1	14	High (Priority 3)
Infectious Outbreak	2	3	2	2	12	Medium (Priority 4)
HAZMAT / Chemical Spill	2	2	2	2	10	Medium (Priority 5)
Borehole / Water Failure	1	2	3	1	8	Low (Priority 6)

Hazard	Probability	Impact	Preparedness Gap	Priority Ranking
Road Traffic MCI	Very High	Severe	Moderate	1
Fire Emergency	High	Severe	Moderate	2
Infectious Disease Outbreak	High	Severe	Moderate	3
Power Failure	High	Major	Low	4
Water Failure	Moderate	Major	Moderate	5
Security Incident	Moderate	Severe	Moderate	6
HAZMAT Incident	Moderate	Major	Moderate	7

2.8 Site-Specific Vulnerability Analysis

- **Structural Vulnerabilities:** The two basement levels present a natural accumulation point for surface runoff during heavy downpours in Mukuyuni area. The Class 2A incinerator is positioned near the rear perimeter, requiring strict wind-direction monitoring to prevent flue gas drift toward inpatient wards. Generator fuel storage tanks are located adjacent to clinical service corridors, presenting a localized fire risk.
- **Operational Vulnerabilities:** Phased commissioning means the ERP must account for partial-capacity operations, where certain clinical wings or backup utility loops may not be fully operational.

- **Geographic Vulnerabilities:** Located in Bungoma along the Trans-Africa Highway (Mombasa-Kampala corridor), the hospital benefits from proximity to Western Kenya’s road transport network. Supply chains include connections to Moi Teaching and Referral Hospital (Eldoret) as a higher-level referral partner during regional crises.
- **Environmental Compliance Vulnerabilities:** Extreme emergency surges can strain waste segregation protocols. This strain increases the risk of medical waste mixing with general streams, exceeding permitted incinerator stack opacity limits, or breaching greenhouse gas (GHG) monitoring systems under NEMA Condition 3.22.

2.9 Capability Gaps and Mitigation Investments

Based on the vulnerability analysis, the following specific mitigation investments are recommended:

- **Trauma Surge:** Deploy automated electronic patient tracking wristbands and expand temporary triage clearings
- **Fire Risk:** Install zone-specific addressable fire containment loops and localized medical gas shut-off valves.
- **Utility Security:** Implement automated dual-generator ATS switchgear and 72-hour dedicated fuel reserves.
- **Environmental:** Install an automated continuous emissions opacity monitor on the incinerator stack.

2.10 Capability Gaps

Identified capability gaps include:

- Limited surge bed conversion systems
- Need for expanded trauma cache inventory
- Additional oxygen reserve systems
- Expanded staff recall systems
- Additional emergency communication redundancy
- Advanced patient tracking systems
- Expanded decontamination capability

2.11 Mitigation Priorities

Recommended investments include:

1. Expanded trauma surge infrastructure
2. Dedicated decontamination corridor
3. Enhanced HEOC systems
4. Expanded blood storage capacity
5. Additional backup generators
6. Redundant ICT infrastructure
7. Additional fire suppression systems

CHAPTER 3: INCIDENT COMMAND SYSTEM (ICS) AND GOVERNANCE

3.1 Hospital Emergency Operations Centre (HEOC)

The Hospital Emergency Operations Centre (HEOC) shall serve as the central command node for all intelligence gathering, resource allocation, and operational escalation.

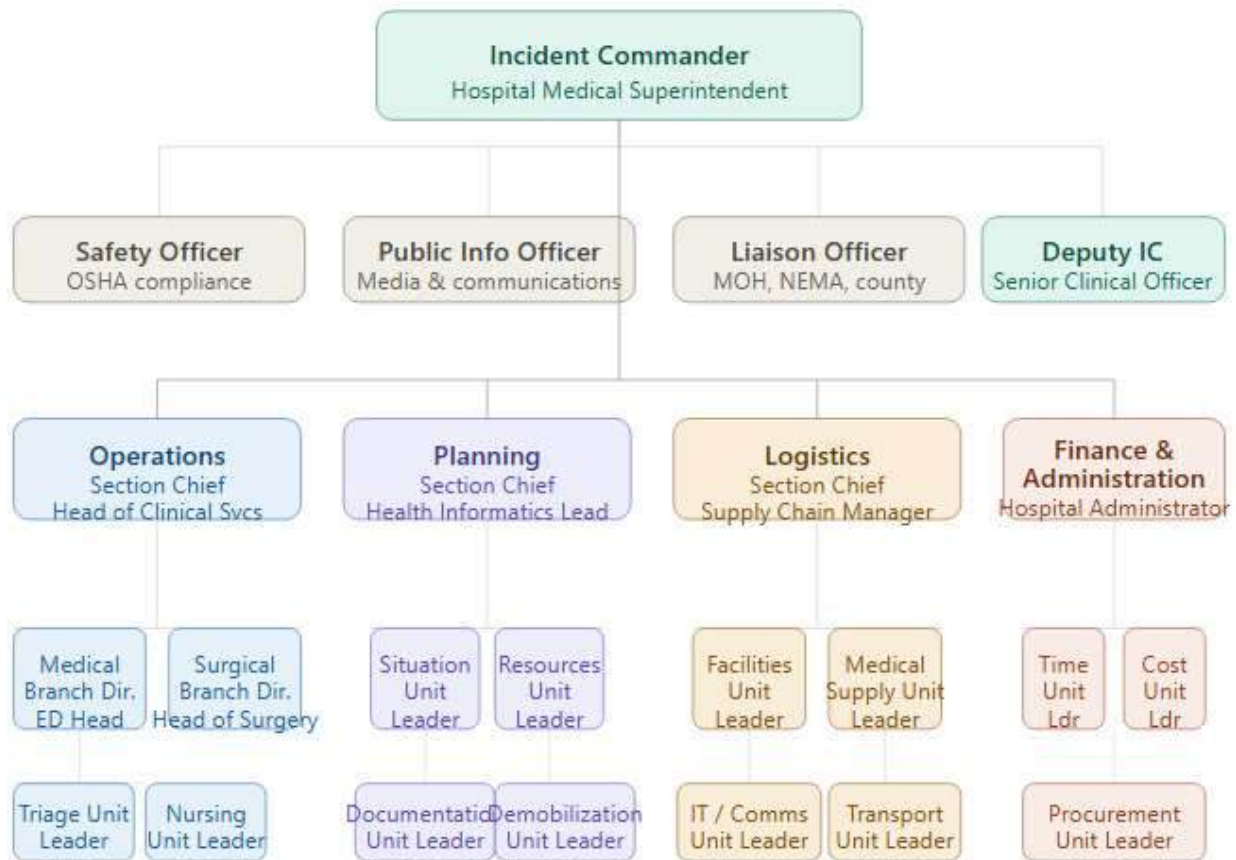
- **Primary Location:** Ground Floor, West Wing administrative suite, situated next to the Trauma & Emergency Department.
- **Backup Location:** First Floor, Medical Education Block, accessible via secondary stairwells if the primary site is compromised.

3.1.1 Minimum HEOC Equipment

- Emergency communication systems
- More than 12 handset VHF/UHF two-way radio base station,
- physical whiteboard patient tracking walls
- Incident status displays
- More than 5 independent computer terminals connected to a backup server loop
- laminated architectural master site layouts with facility maps and evacuation plans
- More than 5 complete sets of the physical ERP documentation
- Dedicated satellite phone terminal

3.2 Hospital Incident Command Structure

BCTRH shall operate under a standardized Incident Command System framework. Command loops scale based on the severity of the incident.



Activation levels

- Level 1 — Monitor: heightened awareness, HEOC on standby, routine operations continue
- Level 2 — Partial activation: HEOC partially staffed, resources pre-positioned, external notifications
- Level 3 — Full activation: HEOC 24/7, all ICS positions filled, MOH EOC and county notified

3.3 Core Roles and Responsibilities

- Incident Commander (IC):** Holds ultimate structural responsibility for all operational execution, strategic deployment, and fiscal authorization. This position is filled by the Hospital Medical Superintendent or their designated clinical alternate.
- Liaison Officer:** Serves as the primary external interface coordinating with the Ministry of Health, the Bungoma County Government, NEMA, and emergency services. This role handles the mandatory 12-hour notification window for facility system malfunctions under NEMA Condition 4.2.
- Operations Section Chief:** Directs the execution of all hazard-specific tactical actions. This role is held by the Head of Clinical Services, who oversees specialized clinical branches including Medical, Surgical, Paediatric, and Nursing teams.
- Logistics Section Chief:** Coordinates the continuous supply of materials, space, and utilities. This position manages the Estates Unit (facilities and water), Medical Supply Unit (pharmacy and blood reserves), and the IT/Communications Unit.

3.4 Role Profiles and Emergency Responsibilities

Every command position operates with a pre-validated one-page role profile card specifying immediate actions:

- **First 15 Minutes:** Verify HEOC communication lines, confirm command structure activation level, and establish the initial incident log.
- **Authority Limits:** The Incident Commander holds immediate spending clearance up to Kes. 5,000,000 during Level 3 activations for life-saving logistics. The Logistics Chief can reallocate general department stocks directly to the Emergency Department without standard procurement loops.
- **Handover Protocol:** Incoming command staff must receive a structured situation report detailing current resource counts, active counts, and tactical priorities before assuming command.

Activation Level	Trigger Matrix	Core Operational Actions
Level 1: Monitor	Regional alerts, early highway accident notices, or projected severe weather changes.	• Heighten clinical surveillance across departments. • Place HEOC communication loops on standby. • Issue alert updates to all department heads.
Level 2: Standby	Verified highway accidents involving 5 or more casualties or minor localized utility disruptions.	• Staff the HEOC with core section leads. • Pre-position trauma and blood bank resources . • Suspend non-critical elective procedures.
Level 3: Full Activation	Mass casualties overwhelming the Emergency Department, severe fires, or extended utility failures.	• Open the HEOC 24/7 with all command roles filled. • Mobilize all available clinical staff. • Escalate coordination with the County CHMT and national MOH EOC.

De-escalation Criteria: Stand-down orders require the Incident Commander's signature following

verification that patient care metrics have stabilized, structural areas are secure, and utility baselines are restored.

3.5 Inter-Agency Coordination Framework

The Liaison Officer coordinates external communications through established channels:

- **Bungoma County CHMT & Disaster Management Unit:** For regional ambulance coordination and staffing support.
- **National Police Service (Kabuchai):** Secures the main hospital access gates and assists with routing arriving ambulances.
- **KeNHA Incident Coordination:** Provides early updates from accident scenes along the transport corridor.
- **NEMA Emergency Hotline (0741101100 / 0736101100):** For mandatory reporting of any environmental pollution incidents within 24 hours per Conditions 4.2 and 4.3.
- **KEMSA Emergency Resupply:** Leverages existing MOUs for rapid delivery of trauma kits and intravenous fluids during large-scale surges.

Depending on the level of emergencies, the proposed hospital shall coordinate with:

- Ministry of Health
- County Health Management Team
- Kenya Red Cross Society
- St John Ambulance
- County Fire and Rescue Services
- Kenya Power
- Water Resources Authority
- Referral hospitals

3.5.1 Incident Commander

Responsible for:

- Overall incident leadership
- ERP activation
- Strategic decision-making
- Resource authorization
- External coordination

3.5.2 Operations Section

Responsible for:

- Clinical operations
- Patient management
- Security coordination
- Evacuation operations
- MCI management

3.5.3 Planning Section

Responsible for:

- Situation assessment
- Incident documentation
- Resource forecasting
- Incident Action Plans (IAPs)

3.5.4 Logistics Section

Responsible for:

- Supplies and equipment
- Transportation
- Staff support
- Communications systems
- Utilities support

3.5.5 Finance and Administration Section

Responsible for:

- Cost tracking
- Procurement support
- Human resource support
- Compensation documentation

3.5.6 Safety Officer

Responsible for:

- Staff safety monitoring
- PPE compliance
- Hazard identification
- Operational safety recommendations

3.5.7 Public Information Officer (PIO)

Responsible for:

- Media communication
- Public statements
- Rumour management
- Information coordination

3.5.8 Liaison Officer

Responsible for:

- Inter-agency coordination
- MOH and county coordination
- NEMA communication
- Partner engagement

3.6 Emergency Activation Levels

Level	Description	Operational Response
Level 1	Minor Incident	Departmental management
Level 2	Moderate Incident	Partial HICS activation
Level 3	Major Incident	Full HICS activation

3.7 Activation Triggers

3.7.1 Level 1

- Small localized fire
- Minor utility interruption
- Limited patient surge

3.7.2 Level 2

- Moderate outbreak
- Multi-department disruption
- Localized security incident
- Moderate casualty surge

3.7.3 Level 3

- Mass casualty incident
- Major fire
- Pandemic emergency
- Structural collapse
- Terror attack

CHAPTER 4: HAZARD-SPECIFIC EMERGENCY RESPONSE PLANS

4.1 Mass Casualty Incident (MCI) Plan

Purpose: To provide a coordinated trauma surge response for incidents involving multiple casualties.

Operational Scope: Covers multi-vehicle highway accidents along the Bungoma corridor.

Trigger Criteria: Direct notification of 5 or more severe casualties arriving simultaneously, or an official county disaster declaration.

4.1.1 Trigger Criteria

The MCI plan shall activate when:

- Five or more casualties arrive simultaneously
- County authorities declare an MCI
- Pre-alert is received from emergency responders
- Emergency Department capacity exceeds 120%

4.1.2 Immediate Actions (0 - 30 Minutes)

1. Activate HICS.
2. Notify all surgical and trauma teams.
3. Open external triage area.
4. Suspend elective theatre procedures.
5. Activate blood bank emergency protocol.
6. Establish a patient tracking system.
7. Secure ambulance routes.

Command Activation: The Medical Superintendent activates Level 3 command, opens the HEOC, and issues a facility-wide intercom alert.

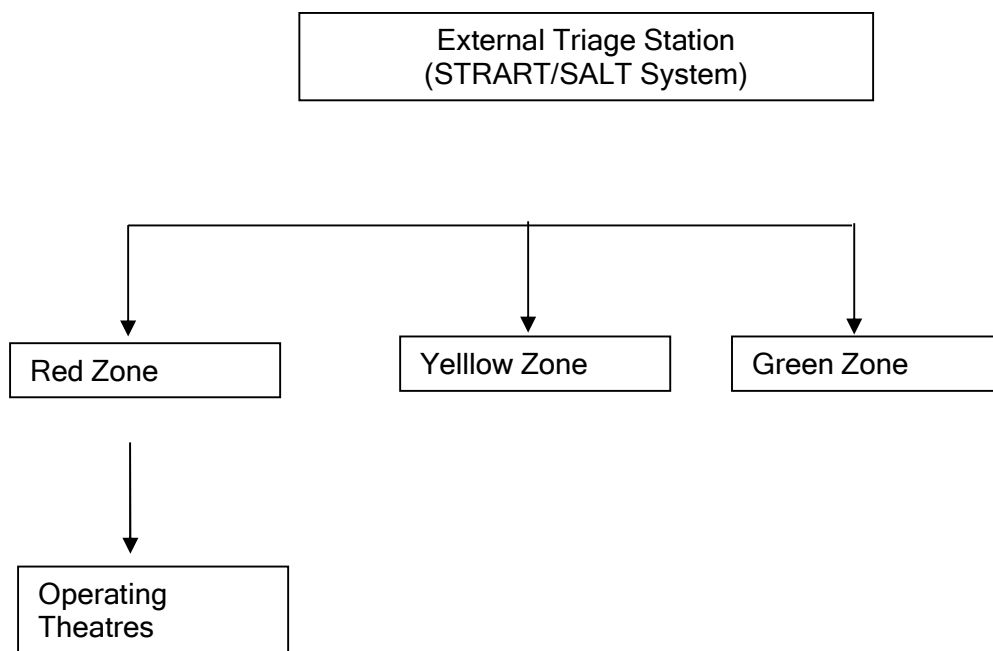
Surge Mobilization: The Nursing Branch Director activates the recall phone tree to bring on-call trauma teams back to the facility. All elective surgeries are suspended, and stable ward patients are moved to early discharge tracks to free up inpatient beds.

4.1.3 Triage System

The hospital shall utilize START/SALT triage:

Triage Zone Setup: The Emergency Department Head sets up an external casualty clearing station outside the main ED doors using START/SALT color-coded categories.

Highway Accident Influx



Triage Category	Priority	Colour
Immediate	Life-threatening but treatable	Red
Delayed	Serious but stable	Yellow
Minor	Walking wounded	Green
Expectant/Deceased	Unsurvivable or deceased	Black

4.1.4 Surge Capacity Strategy

Baseline Capacity:700 inpatient beds

Surge Measures:

- Convert recovery rooms to ICU overflow
- Convert lecture halls to temporary wards
- Utilize outpatient spaces for low-acuity care
- Activate corridor care protocols
- Early discharge of stable patients

Target Surge Capacity:980 operational treatment spaces

during full activation.

4.1.5 Family Assistance Centre

A Family Reception and Information Centre shall be established to:

- Support reunification
- Provide psychosocial support
- Facilitate patient identification
- Coordinate information release

Sustained Response Actions (30 Minutes–12 Hours)

1. **Operating Theatre Escalation:** The Surgical Branch Director places all main theatres on emergency status, dedicating staff to trauma stabilization and neurosurgery.
2. **Blood Supply Logistics:** The Blood Bank initiates emergency Group O-negative release protocols and contacts the regional donor network to replenish stocks.
3. **Patient Identification:** Arriving patients are fitted with automated electronic tracking wristbands; if tracking networks go down, staff switch to sequential paper logs.
4. **Family & Media Management:** Social workers open a secured family reception centre in the Medical Education wing to manage identification and reunification. The Public Information Officer handles all press updates from a separate media briefing area.

Recovery & Compliance Actions

- Clear non-critical corridors and transfer stable patients to Bungoma County Referral Hospital under overflow agreements. For specialist cases exceeding BCTRH capacity, escalate to Moi Teaching and Referral Hospital (Eldoret) as the regional higher-level referral partner.
- Collect and register all biomedical waste generated during the surge, routing it directly to the Class 2A incinerator in compliance with NEMA Condition 3.13.

4.2 Fire Emergency and Evacuation Plan

4.2.1 Fire Prevention Measures

The hospital shall maintain:

- Smoke detection systems
- Automatic sprinklers
- Fire hydrants
- Portable extinguishers
- Fire compartmentalization
- Emergency exits and signage

4.2 Fire Emergency & Building Evacuation (Priority 2)

- **Operational Scope:** Covers internal structural fires affecting clinical floors or basement systems.
- **Trigger Criteria:** Activation of localized smoke detectors, drop in water loop pressure, or a physical alarm

break.

Immediate Tactical Actions (0–30 Minutes)

1. **Local Containment:** Staff at the fire's origin deploy local extinguishers or hydrants if safe to do so.
2. **Alarm Cascade:** The HEOC issues evacuation orders over the main PA system, automatically contacting the County Fire & Rescue Services.
3. **Utility Isolation:** The Estates Manager isolates the medical gas manifold zone and generator fuel lines nearest the fire to prevent explosion risks.

4.2.2 RACE Fire Response Protocol

Step	Action
R	Rescue persons in immediate danger
A	Activate alarm
C	Contain fire by closing doors
E	Extinguish or evacuate

4.2.3 Patient Evacuation Priority

1. Ambulatory patients
2. Wheelchair patients
3. Bed-bound patients
4. ICU/HDU patients
5. NICU patients
6. Patients in theatre

4.2.4 Fire Wardens

Each department shall designate trained fire wardens responsible for:

- Evacuation coordination
- Headcount verification
- Alarm activation
- Fire extinguisher deployment

Sustained Response Actions (30 Minutes–12 Hours)

1. **Phased Evacuation:** Nominated floor wardens direct patients along designated emergency stairwells toward outside assembly points. Patient movement follows clear clinical priorities:

2. **Incinerator Shutdown:** If a fire occurs near the waste management yard, operators execute emergency incinerator shutdowns, isolate the main chimney stacks, and clear adjacent fuel stores.
3. **Headcount Verification:** Floor wardens compile headcount logs at designated assembly areas, reporting missing persons directly to the Safety Officer.

Recovery & Compliance Actions

- Structural engineers conduct safety assessments before clearance is given to re-enter affected clinical wings.
- The Liaison Officer logs the incident details and submits a formal pollution report to NEMA within 24 hours per Condition 4.3.

4.3 Infectious Disease Outbreak Response

4.3.1 Outbreak Response Objectives

- Rapid detection
- Isolation and containment
- Protection of staff
- Continuity of care
- Reduction of transmission

Operational Scope: Sudden spikes in highly infectious pathogens within the hospital's agricultural catchment.

Trigger Criteria: Two or more linked cases of high-consequence pathogens like cholera or Rift Valley Fever.

Immediate Tactical Actions (0–30 Minutes)

1. **Isolation Activation:** Clinical teams isolate suspected patients in negative-pressure rooms within the infectious disease ward.
2. **IPC Escalation:** The Safety Officer raises Infection Prevention and Control (IPC) protocols from Standard to Outbreak level, setting up dedicated PPE donning and doffing stations at ward entry points.

Sustained Response Actions (30 Minutes–12 Hours)

1. **Supply Deployment:** The Supply Chain Manager releases items from the facility's 90-day reserve PPE stockpile.
2. **Staff Screening:** Occupational health teams set up daily symptom screening checkpoints and provide prophylaxis for frontline clinical staff.
3. **Reporting Pathways:** The Liaison Officer transmits epidemiological data to the County Director of Health

and the MOH Disease Surveillance network. Zoonotic cases like Rift Valley Fever are reported to KEPHIS within the required windows.

4. **Waste Management Controls:** All waste from isolation zones is classified as highly infectious bio-medical waste. It is placed in double-sealed bags and sent directly to the Class 2A incinerator under strict temperature controls, matching NEMA Conditions 3.13 and 3.15.

Recovery & Compliance Actions

- Complete terminal deep-cleaning and chemical decontamination across all exposed clinical areas.
- Monitor waste logs to confirm complete, clean disposal of all contaminated materials.

4.3.2 IPC Escalation Levels

Level	Operational Status
Standard	Routine IPC measures
Enhanced	Increased surveillance
Outbreak	Isolation activation
Epidemic/Pandemic	Full outbreak operations

4.3.3 Isolation Measures

The hospital shall maintain:

- Isolation wards
- Controlled entry points
- Screening stations
- PPE stockpiles
- Dedicated outbreak teams

4.3.4 PPE Stockpile Targets

Minimum 90-day reserve for:

- N95 respirators
- Surgical masks
- Gloves
- Gowns
- Face shields
- Hand hygiene supplies

4.4 HAZMAT and Chemical Incident Response

4.4.1 Potential Hazardous Materials

- Laboratory reagents
- Cytotoxic medications
- Fuel and oils
- Medical gases
- Incinerator ash
- Cleaning chemicals

4.4.2 HAZMAT Response Priorities

1. Protect life.
2. Isolate affected area.
3. Identify hazardous substance.
4. Initiate decontamination.
5. Notify authorities.
6. Prevent environmental contamination.

Operational Scope: Industrial spills involving laboratory reagents, generator fuel, or incinerator ash.

Trigger Criteria: Bulk chemical leak exceeding 20 litres, or any visible breach of fuel storage tanks.

Immediate Tactical Actions (0–30 Minutes)

1. **Zoning Control:** The Safety Officer isolates the spill area, determines local wind direction to protect nearby wards, and sets up a decontamination corridor outside the spill zone.
2. **Incinerator Shutdown:** If an incinerator leak causes stack emissions to breach 20% opacity at 50 meters, operators initiate an immediate system shutdown per NEMA Condition 3.8.

Sustained Response Actions (30 Minutes–12 Hours)

1. **Containment Measures:** Response teams wear Level B or C PPE to apply neutralizers and absorbent booms around the chemical spill.
2. **Effluent Protection:** If the spill threatens the bio-digester, operators close emergency valves to route contaminated runoff into secure holding tanks, preventing damage to the wastewater treatment system.
3. **Regulatory Notification:** The Liaison Officer contacts the NEMA Emergency Hotline within 12 hours to report the malfunction, matching Condition 4.2 guidelines.

Recovery & Compliance Actions

- Cleaned chemical waste and contaminated soils are packed into secured drums and sent to NEMA-approved hazardous waste sites per Condition 3.9.
- Enter full details into the on-site pollution incident register for review by NEMA inspectors.

4.4.3 Decontamination Zones

Zone	Function
Hot Zone	Contaminated area
Warm Zone	Decontamination area
Cold Zone	Safe treatment area

4.5 Utility Failure Response Plan

4.5.1 Power Failure Response

Priority Power Loads:

- ICU/HDU
- Operating theatres
- NICU
- Blood bank
- Laboratory systems
- ICT systems

Generator Targets:

- Automatic activation within 15 seconds
- Minimum 72-hour fuel reserve
- Monthly load testing

4.5.2 Water Failure Response

The hospital shall maintain:

- Water storage reserves
- Tanker supply agreements
- Borehole backup systems
- Critical water prioritization

4.5.3 Medical Gas Failure

Emergency actions include:

- Cylinder reserve activation
- Ventilator prioritization
- Manual ventilation teams
- Isolation of faulty manifold systems

Operational Scope: Interruptions to primary grid power, water lines, or central medical oxygen delivery networks.

Trigger Criteria: Main line dropouts lasting longer than 15 seconds.

Immediate Tactical Actions (0–30 Minutes)

1. **Backup Power Activation:** Backup generators must engage via automated ATS links within 15 seconds. The Estates Manager verifies that power routes successfully to critical areas, including the ICU, theatres, NICU, and blood bank cold chains.
2. **Gas Loop Transition:** If the main oxygen plant drops pressure, technicians switch over to localized cylinder reserve manifolds to maintain line pressures.

Sustained Response Actions (30 Minutes–12 Hours)

1. **Fuel Supply Management:** The Logistics Chief monitors the generator fuel levels, ensuring the facility maintains its 72-hour full-load backup fuel target. Any generator failures are escalated to NEMA within 12 hours under Condition 4.2 rules.
2. **Water Supply Backup:** If the main water line fails, the facility switches over to the authorized on-site borehole and activates rainwater harvesting arrays per NEMA Condition 3.17. Non-essential water use is limited to preserve core clinical functions.
3. **Paper Downtime System:** If IT networks or the HMIS fail, clinical teams transition to paper charts and manual logs to maintain tracking and prescriptions.

Recovery & Compliance Actions

- Verify line stabilities before transitioning back to primary municipal water or grid power networks.
- Document all generator run hours and fuel use to maintain compliance with emissions reporting under NEMA Condition 3.23.

4.6 Security Incident Response

4.6.1 Potential Security Threats

- Armed intrusion
- Bomb threats
- Violent patients or visitors
- Civil unrest
- Terror incidents

4.6.2 Lockdown Procedures

The Incident Commander may order:

- Restricted entry
- Controlled movement
- Shelter-in-place
- Security perimeter activation

4.6.3 Coordination Agencies

- National Police Service
- Anti-Terrorism Police Unit
- County Security Committees

4.7 Environmental Incident Response

4.7.1 Potential Environmental Emergencies

- Wastewater spills
- Incinerator emissions exceedance
- Fuel spills
- Biomedical waste overflow
- Chemical contamination

4.7.2 Environmental Reporting Requirements

Incident Type	Reporting Timeline
System malfunction	Within 12 hours
Pollution incident	Within 24 hours
Major environmental release	Immediate notification

CHAPTER 5: RESOURCE MANAGEMENT

5.1 Critical Resource Inventory

5.1.1 Emergency Medical Supplies

The hospital shall maintain emergency reserves for:

- Trauma medications
- Blood products
- Antidotes
- IV fluids
- Ventilator consumables
- Surgical supplies

5.2 Stockpile Targets

The Logistics Section Chief shall maintain stock targets scaled to handle a 700-bed capacity emergency surge:

Resource Category	Minimum Stock Target	Storage & Management Specifications
Trauma Pharmaceuticals	30-Day Emergency Reserve.	Emergency trauma meds, IV fluids, and blood products held in a separate pharmacy section.
Personal Protective Equipment	90-Day Outbreak Supply.	Tiered PPE kits (Levels A-D) organized by hazard risk in the main central stores.
Medical Equipment Reserve	Dedicated Emergency Backup.	Standby mechanical ventilators, defibrillators, infusion pumps, and sterile surgical sets.
Generator Fuel Reserve	72-Hour Full-Load Capacity.	Held in secured tanks with environmental bunds to prevent leaks.
On-Site Water Storage	48-Hour Clinical Operations.	Stored in elevated and underground tanks, fed by the authorized borehole loop.

5.2 KEMSA & Supply Chain Emergency Protocols

- **Emergency Orders:** The Pharmacy Director can bypass standard purchase timelines to submit emergency supply requests directly to KEMSA during Level 2 or 3 activations.
- **Alternative Channels:** If KEMSA routes are disrupted, the hospital uses emergency MOUs to source items directly from county medical stores or pre-vetted private distributors.
- **Escalation Pathway:** Critical shortages of essential drugs or surgical consumables are escalated within two hours to the County CHMT and the national MOH logistics desk.

5.3 Surge Staffing Plan

The hospital shall maintain:

- Emergency recall trees
- Cross-training systems
- Volunteer rosters
- University partner support agreements

- Staff welfare arrangements

5.4 Staff Welfare Measures

- Rotational rest periods
- Feeding arrangements
- Psychological support
- Fatigue monitoring
- Accommodation support during prolonged incidents

5.3 Surge Staffing Plan

- **Recall Mechanisms:** Department leads utilize structured telephone trees to recall off-call personnel during mass casualty events.
- **Cross-Deployment:** The Nursing Chief can reassign clinical staff from outpatient or research areas to assist in the Emergency Department or ICU.
- **Academic Resources:** As a teaching hospital, the facility can activate qualified medical interns and university clinical partners to expand support teams during extended crises.
- **Staff Welfare:** Personnel working extended shifts are placed on a 12-hour maximum rotation cycle. The Safety Officer coordinates food supply lines, rest areas, and psychological first aid support.

5.4 Financial Resource Management

- **Emergency Allocations:** Level 3 activations grant the Incident Commander authority to approve emergency spending up to Kes. 5,000,000. The Finance Section Chief handles petty cash and issues emergency purchase orders directly.
- **Compliance Tracking:** The Finance team tracks all costs associated with environmental cleanup, pollution control, or emergency waste disposal separately. This financial tracking is included in post-emergency reports submitted to the Ministry of Health and the National Treasury.

CHAPTER 6: COMMUNICATIONS PLAN

6.1 Internal Communication Systems

Primary systems:

- Hospital intercom system
- HMIS messaging
- Internal telephone network
- Incident briefing system

Secondary systems:

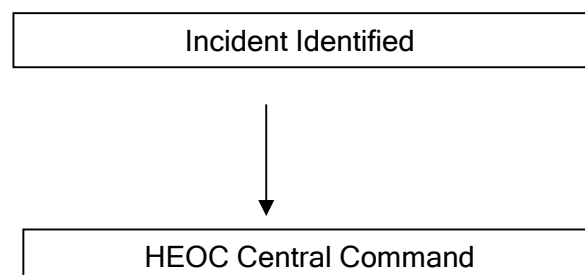
- WhatsApp emergency groups
- Signal coordination channels
- SMS alert systems

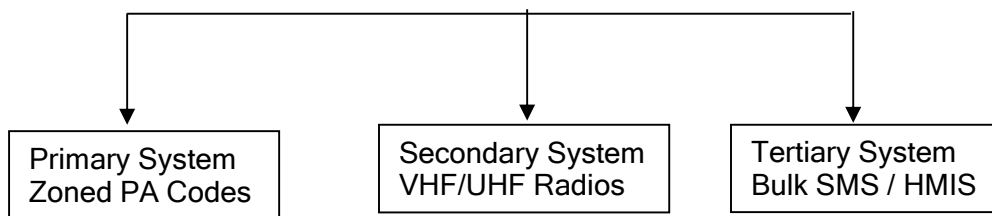
Backup systems:

- VHF/UHF radios
- Satellite phones
- Paper runners

The proposed hospital shall rely on redundant communication loops to ensure continuous messaging across all clinical and administrative units during an emergency.

- **Primary System (Public Address & Intercom):** The main multi-storey clinical block features a zoned Public Address (PA) and intercom system. Emergency codes are broadcasted using standardized terminology to alert staff without causing panic among patients and visitors.
- **Secondary System (VHF/UHF Two-Way Radios):** Handheld VHF/UHF radio sets are distributed across key tactical nodes, including the HEOC, Trauma/Emergency Department, Operating Theatres, Intensive Care Unit, Security Desk, and Estates/Facilities team. A dedicated repeater station on the roof ensures signal coverage across all basement levels and outbuildings.
- **Tertiary System (Automated SMS & WhatsApp Cascades):** The Hospital Management Information System (HMIS) includes an integrated emergency broadcast module. This system can send instant, automated bulk SMS alerts to all registered staff devices based on pre-defined group lists.





6.1.1 Standardized Hospital Emergency Codes

To maintain operational security and clear communication, BCTRH shall use the following standardized emergency codes:

Emergency Code	Meaning / Incident Type	Immediate Staff Action Required
Code Red	Fire or Smoke	Proceed to designated fire stations, close smoke doors, and prepare for evacuation.
Code Blue	Medical Emergency / Cardiac Arrest	The specialized resuscitation team responds immediately to the broadcasted location.
Code Yellow	Mass Casualty Incident Surge	All emergency trauma teams assemble at the clearing station; stop elective admissions.
Code Amber	Infant or Child Abduction	Security locks down all exit gates, parking bays, and perimeter doors for inspection.
Code Black	Bomb Threat or Suspicious Object	Clear the immediate area; report details to Security; do not use two-way radios near the object.
Code Silver	Active Shooter / Armed Intruder	Run, Hide, Fight. Lock down wards and secure clinical access doors.

Emergency Code	Meaning / Incident Type	Immediate Staff Action Required
Code Orange	HAZMAT or Chemical Spill	Isolate the zone, shut down local ventilation, and deploy the chemical spill response team.
Code Grey	System or Main Utility Failure	Engineering teams activate backup procedures; clinical units switch to manual tracking.

6.2 External Communications

The Public Information Officer (PIO) will manage all external communications to maintain clear, accurate reporting and protect patient confidentiality.

- **Media Relations Framework:** No hospital staff member, other than the Incident Commander or the designated PIO, will be authorized to speak to journalists or issue statements. The media briefing room in the Medical Education wing serves as the single point of contact for all press updates.
- **Information Security & Privacy:** Patient identifiers, specific clinical details, and casualty lists are protected under the Kenya Health Act 2017 and data protection regulations. Casualty updates are shared using aggregated, anonymized figures approved by the Incident Commander.

6.3 Inter-Agency Communication Loops

The hospital shall maintain communication protocols with:

- Ministry of Health
- CHMT
- Emergency responders
- Referral facilities
- Utility providers
- Media organizations

The Liaison Officer shall manage communications with external emergency services using dedicated reporting channels:

- **County Health Emergency Operations Centre (CHMT EOC):** Connected via a direct hotline to coordinate ambulance diversions and mutual-aid staffing.
- **National Joint Disaster Operations Centre (JDOC):** Updates are shared via standardized Situation Reports (SITREPs) during large-scale regional emergencies.
- **NEMA Emergency Notifications:** In compliance with NEMA License Conditions 4.2 and 4.3, any environmental pollution or system failure must be reported to the NEMA hotline within 12 hours, followed by a formal written report within 24 hours.

6.3 Public Information Management

Only the Public Information Officer or authorized spokesperson may release information.

Media Principles:

- Accuracy
- Timeliness
- Confidentiality
- Transparency
- Consistency

6.4 Situation Reporting

The following reports shall be used:

Report Type	Timeline
Initial SITREP	Within 1 hour
Operational SITREP	Every 6 hours
Executive SITREP	Every 24 hours
Final Incident Report	Within 7 days

CHAPTER 7: EVACUATION AND CONTINUITY OF ESSENTIAL SERVICES

7.1 Evacuation Authority and Triggers

The authority to order a partial or full evacuation of the 700-bed facility rests solely with the Incident Commander. If a sudden structural fire or explosion presents an immediate danger, floor wardens can initiate local evacuations of their specific zones while notifying the HEOC.

Evacuation Trigger Matrix

- **Partial Evacuation:** Triggered by localized events like a kitchen fire, a minor chemical spill in a lab, or a water pipe burst affecting a single ward or wing.
- **Full Evacuation:** Triggered by structural threats like an uncontained building fire, a significant bomb threat, major seismic damage, or a widespread toxic gas release.

7.2 Structural Evacuation Routes & Assembly Points

The main building features designated emergency exit stairwells equipped with fire doors and self-charging emergency lighting. Elevators are automatically disabled during fire alarms and must not be used for evacuation.

- **Primary Assembly Point A:** The main open parking lot near the facility front entrance. This area is used for ambulatory patients, visitors, and general administrative staff.
- **Secondary Assembly Point B:** The healing gardens located on the south side of the site footprint. This area is used for non-ambulatory patients and specialized clinical transfers.
- **Hazard-Specific Assembly Point C:** The open field near the medical education block. This site is used if an incident involves the rear utility yard or the incinerator system.

7.3 Patient Evacuation Prioritization (Clinical Logistics)

Patient evacuations follow a strict clinical priority framework to ensure that vulnerable, high-dependency individuals receive appropriate support during transport:

Priority 1: Ambulatory (Green)
Ambulatory/Critical (Red)

Priority 2: Semi-Ambulatory (Yellow)

Priority 3: Non-

7.4 Critical Functions

The following services shall receive continuity priority:

1. Emergency Department
2. ICU/HDU
3. NICU
4. Operating theatres
5. Blood bank
6. Laboratory services
7. Pharmacy
8. Dialysis services
9. Obstetric services
10. ICT and patient records

7.5 Continuity Strategies

7.5.1 Clinical Continuity

- Alternative treatment areas
- Prioritized patient care
- Emergency staffing pools
- Mutual aid referrals

7.5.2 ICT Continuity

- Redundant servers
- Cloud backups
- Paper documentation procedures
- Recovery systems

7.5.3 Utility Continuity

- Generator backup systems
- Emergency water reserves
- Oxygen reserve systems

7.6 Special Patient Populations

7.6.1 Neonatal and Paediatric Patients

- Incubator backup systems
- Transport incubators
- Dedicated evacuation teams

7.6.2 Dialysis Patients

- Session prioritization
- Alternative referral arrangements
- Emergency consumable reserves

7.6.3 Ventilator-Dependent Patients

- Manual ventilation backup teams
- Portable oxygen systems
- Portable ventilators

CHAPTER 8: RECOVERY AND RETURN TO NORMAL OPERATIONS

8.1 Post-Incident Demobilization

The Incident Commander issues the official stand-down order once the immediate physical, chemical, or clinical threats have been resolved. Demobilization follows a structured checklist:

- **Accountability Check:** All deployed staff check out through their respective Section Chiefs to confirm complete safety logs.
- **Equipment Retrieval:** Tactical gear, portable radios, and unused emergency medical kits are returned to central supply stores for inspection and cleaning.
- **Waste Clearance:** Specialized cleaning crews collect any remaining hazardous or biomedical waste, routing it to the Class 2A incinerator or secured holding zones to maintain compliance with NEMA Condition 3.13.

8.2 Immediate Recovery Phase (0–72 Hours)

Recovery priorities include:

- Safety inspections
- Debris clearance
- Utility restoration
- Restocking critical supplies
- Staff welfare support
- Environmental containment

8.3 Medium-Term Recovery

The hospital shall:

- Restore deferred services
- Repair damaged systems
- Process insurance claims
- Conduct environmental assessments
- Restore staffing levels

8.4 After-Action Review (AAR)

An AAR shall be conducted within 14 days following:

- Major incidents
- Full-scale exercises
- Significant operational disruptions

8.4.1 AAR Components

Component	Focus
Timeline Reconstruction	Sequence of events
Operational Review	Response effectiveness

Component	Focus
Resource Assessment	Adequacy of supplies and staffing
Communication Review	Coordination effectiveness
Compliance Review	Regulatory adherence
Corrective Actions	Improvement priorities

8.5 Corrective Action Tracking

All identified gaps shall be:

- Assigned responsible officers
- Given implementation timelines
- Monitored quarterly
- Incorporated into ERP revisions

CHAPTER 9: TRAINING, EXERCISES AND PLAN MAINTENANCE

9.1 Training Framework & Competency Matrix

The hospital maintains a continuous training curriculum to ensure all personnel understand their roles within the Emergency Response Plan.

- **General Staff Induction:** All new clinical, administrative, and support personnel complete a mandatory emergency response module during orientation. This training covers basic fire safety, building evacuation routes, and standard emergency codes.
- **ICS Command Staff Specialization:** Nominated Incident Commanders, Section Chiefs, and Officers complete advanced Incident Command System training. This coursework focuses on resource logistics, emergency procurement, and inter-agency coordination.
- **Specialized Tactical Training:** Frontline teams complete advanced technical training tailored to high-risk hazards:

9.2 Training Program

All staff shall receive:

- ERP orientation
- Fire safety training
- Incident command training
- IPC training
- Evacuation training
- Mass casualty management training

9.3 Specialized Training

Advanced training shall include:

- HICS certification
- Advanced trauma management
- HAZMAT operations
- Outbreak management
- Crisis communication

9.4 Exercise Schedule

Exercise Type	Frequency
Tabletop Exercise	Quarterly
Departmental Drill	Semi-Annual

Exercise Type	Frequency
Full-Scale Exercise	Annual
Fire Drill	Semi-Annual
MCI Simulation	Annual
Outbreak Simulation	Annual

9.5 Drill and Exercise Schedule

BCTRH runs regular practical exercises to test response capabilities, validate utility backups, and satisfy regulatory safety requirements:

Exercise Type	Frequency	Core Focus / Operational Target	Compliance Alignment
Tabletop Exercises	Every 6 Months	Command structure coordination, communication flow checks, and role validation.	MOH EDRM Policy
Functional Fire Drills	Annually	Floor warden mobilization, exit route clearings, and assembly point checks.	OSHA 2007 Regulations
Full-Scale MCI Drills	Every 2 Years	Simulated highway accidents involving real-time triage, surgical surges, and ambulance routing.	Kenya Health Act 2017
HAZMAT / Incinerator Drills	Annually	Containment spills, emergency system shutdowns, and emissions monitoring.	NEMA License Condition 3.8

9.6 Plan Review, Maintenance & Version Control

- **Annual Review Loop:** The Safety Committee reviews the ERP annually to update staff contact directories, adapt to physical facility changes, and incorporate updated clinical guidelines.
- **Post-Incident Adjustments:** The document is updated immediately following any real-world emergency that requires a Level 2 or Level 3 activation, using insights from the formal After-Action Review.
- **Version Control Ledger:** All modifications are recorded in a central tracking ledger. Superseded copies are collected and destroyed to ensure only the approved version is available at active workstations.

CHAPTER 10: ANNEXES

10.1 Annex A: Emergency Contact Directory

The annex shall include:

- ICS leadership contacts
- Emergency responder contacts
- County emergency contacts
- NEMA emergency hotline
- Referral hospital contacts
- Utility provider contacts

10.2 Annex B: Site Maps and Infrastructure Diagrams

The annex shall include:

- Master hospital site map
- Evacuation maps
- Assembly points
- Medical gas shutoff points
- Generator locations
- HEOC location
- Decontamination corridor layout

10.3 Annex C: Quick Reference Cards

Quick-reference materials shall include:

- ICS role cards
- Fire response cards
- MCI triage cards
- Evacuation guides
- NEMA reporting guides

10.4 Annex D: Reporting Templates

Templates shall include:

- Incident reporting forms
- SITREP templates
- Patient tracking forms
- NEMA notification forms
- AAR templates

10.5 Annex E: MOUs and Service Agreements

The hospital shall maintain agreements with:

- Referral hospitals
- Blood suppliers
- Ambulance services

- KEMSA
- Universities
- Emergency response partners

10.6 Annex F: Inventory Checklists

Operational checklists shall include:

- PPE inventories
- Fuel logs
- Water reserves
- Generator maintenance logs
- Oxygen reserve inventories

10.7 Annex G: Regulatory Compliance Checklist

The compliance matrix shall map:

- NEMA conditions
- OSHA obligations
- MOH EDRM requirements
- Health Act provisions
- Environmental reporting timelines

APPROVAL AND AUTHORIZATION

This Emergency Response Plan is approved for implementation by Bungoma Level VI Teaching and Referral Hospital (BCTRH) and the Ministry of Health.

Prepared By
ERP Consultant

Signature
.....

Date
.....

Approved By
Ministry of Health

Signature
.....

Date
.....

APPENDIX 11: REVIEW COMMENTS RESOLUTION LOG

This log records every comment received on the draft Environmental and Social Impact Assessment, the response made, the action taken and the location of the revision in this report. It is a self-contained declaration: no cross-reference to a separate document is required to establish how any comment was resolved.

Part A – African Development Bank conditional clearance items

No.	Comment received	Response and action taken	Location in this report
A1	Bed capacity: reconcile the 700-bed and 1,800-bed descriptions to a single figure or state a scaling relationship, and confirm the MWMP waste derivation follows from it.	A single commissioned figure of 700 beds is adopted throughout the ESIA, ESMP, MWMP, SEP and EPRP, sourced to the approved bed schedule, the Zone 3 Area Schedule of 13 July 2026, Clinical Service Plan Rev 2 and the KHISP Policy Brief. No scaling relationship is applied. Waste quantities are derived from WHO unit generation rates applied to 700 beds.	Executive Summary – "Design Basis – Commissioned Bed Capacity"
A2	Consultant CVs: insert the pending CVs referenced in Appendix 3.	The curricula vitae, NEMA certificates of registration and practising licences of all ten experts are reproduced in full, page for page. The study team table has been restated to agree with the certificates.	Appendix 3
A3	Air quality baseline: commission site-specific field measurement, or retain the extrapolation with an explicit time-bound commitment to confirmatory monitoring at the Year-1 Environmental Audit.	The second option is taken. A commitment specifying parameters, four monitoring locations, method, responsible party, a first round before construction and within three months of the licence, a confirmatory round at the Year-1 Environmental Audit, the reporting route to NEMA and the Bank, and the consequence if measured values diverge.	Appendix 7 – "Commitment to Confirmatory Air Quality Monitoring"
A4	Outstanding baseline surveys: incorporate traffic, biodiversity and household socio-economic survey data, or state explicitly in the baseline chapter that these are deferred to detailed design, with defined scope, responsibility and timing.	The three studies are stated as deferred, each with a defined scope, a named responsible party and defined timing, and each carried as a line item in the ESMMP reported to the Bank quarterly. The statement appears in the baseline chapter as requested, and in the Executive Summary.	Chapter 4 and Executive Summary – "Baseline Studies Deferred to Detailed Design"

Part B – NEMA Terms of Reference Approval conditions

No.	Condition	How it is discharged	Location
B1	Inclusive and detailed stakeholder engagement and public participation with Project Affected Persons under Regulation 17, with evidence of analysis and incorporation of public comments in the final report.	A public participation meeting was convened by notice under Regulation 17 and held on 15 April 2026 at the proposed project site. The minutes, the signed attendance register and photographs of the meeting are reproduced, and the issues raised are analysed and carried into the impact assessment and the ESMP.	Appendix 1, Appendix 2 and Appendix 6
B2	Submission of a duly signed ESIA study report prepared by a team of experts.	The report carries the Document Authentication and Certification page and the full study team with NEMA registrations and practising licences.	Document Authentication; Appendix 3

Part C – Comments on the draft ESIA and the Stakeholder Engagement Plan

Theme	Comment received	Response and action taken
Project description and associated facilities	The Executive Summary should include the project description, associated facilities, key significant impacts, public participation and stakeholder engagement, key mitigation commitments and consultation outcomes.	The Executive Summary was rebuilt to carry each of these, including an ESMP summary and the consultation outcomes.

Theme	Comment received	Response and action taken
Land tenure	The site acreage and tenure position required correction.	Stated as approximately 50 acres on Plot L.R No. Bokoli/Chwele 2458 – approximately 20 acres transferred from the Kenya Medical Training College and approximately 30 acres in the process of transfer, consistent with the Feasibility Study Report.
Impact methodology	The significance rating framework was not stated.	The magnitude, duration, extent, reversibility and likelihood framework is set out with its scoring bands and applied consistently to every rated impact.
Cumulative impacts	Cumulative impact assessment was absent.	A cumulative impacts assessment has been added, addressing the concurrent development of the companion facility and other developments in the area of influence.
Institutional capacity	Institutional capacity and roles were not assessed.	An institutional capacity assessment has been added, with roles, capacity findings and strengthening measures for each institution.
Grievance redress	Grievance contacts and the redress mechanism required completion.	The designated grievance office, named officer, telephone, email, physical address, hours, anonymous and confidential SEA/SH channels, acknowledgement and resolution timeframes and the right of appeal are set out in full.
Gender and vulnerable groups	Gender aspects required strengthening.	Gender and vulnerable-group provisions are carried through the baseline, impact assessment, ESMP and the Stakeholder Engagement Plan, including SEA/SH provisions.
Medical waste management	The MWMP required a storage facility specification, waste quantification consistent with the bed basis, and a completed annex register.	The MWMP carries the storage facility specification, quantities derived from the 700-bed basis, and the full annex pack.
Stakeholder Engagement Plan	Boilerplate from an unrelated project, incorrect safeguard references and a duplicated paragraph were present.	All boilerplate removed, safeguard references corrected to the AfDB Integrated Safeguards System Operational Safeguards, the duplication removed and the disclosure record completed.
References and certification	The references and certification sections were incomplete.	Both have been completed.

Part D – Status

All comments recorded above are closed. No comment received on the draft remains outstanding at the date of this revision.