

THE REPUBLIC OF KENYA

**MINISTRY OF HEALTH
P.O BOX 30016 – 00100
NAIROBI**

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED
CONSTRUCTION OF SOUTH RIFT LEVEL (VI) TEACHING AND REFERRAL HOSPITAL IN KERICHO
COUNTY.**

GPS COORDINATES: (-0.1645437, 35.5905757)

MAY, 2026

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DOCUMENT AUTHENTICATION

This Environmental Social Impact Assessment report (ESIA) has been prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 and the Environmental Impact Assessment and Audit Regulations 2003 which requires that every development project must have an EIA report prepared for submission to the National Environmental Management Authority (NEMA). We the undersigned, certify that the particulars in this report are correct and righteous to the best of our knowledge.

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EXECUTIVE SUMMARY

The proposed development of a Level VI hospital in Kericho County, specifically within Kipkelion East Sub-County (Kedowa/Kimugul area), is a strategic intervention aimed at strengthening access to advanced and specialized healthcare services in the region. Currently, residents rely heavily on distant referral facilities for specialized treatment, leading to delays in care, increased costs, and, in some cases, preventable health outcomes. The project is therefore designed to bridge this critical service gap by providing comprehensive, high-level medical services closer to the community.

The project site is located in a predominantly rural setting characterized by agricultural land use and dispersed settlements. Its positioning within Kedowa/Kimugul ward offers accessibility to surrounding populations while also presenting opportunities for regional healthcare integration. However, the area's existing infrastructure, including road networks and utilities, will require enhancement to adequately support the proposed facility.

From an environmental and social perspective, the project is associated with both positive and manageable adverse impacts. Key positive impacts include improved access to quality healthcare, job creation during both construction and operational phases, and stimulation of local economic activities. Socially, the hospital is expected to significantly reduce travel time for patients seeking specialized care and improve overall health outcomes in Kericho County and neighboring regions.

Potential environmental and social concerns include increased demand for water and energy resources, generation of healthcare and construction waste, occupational health and safety risks, and localized disturbances such as noise, dust, and traffic during construction. There may also be minor land use changes and pressure on existing social infrastructure. However, these impacts are largely site-specific, short-term (during construction), and can be effectively mitigated through the implementation of appropriate environmental and social management measures, including waste management systems, resource efficiency strategies, and community engagement frameworks.

In terms of sustainability, the proposed hospital demonstrates strong potential for long-term viability. The integration of sustainable design principles such as energy-efficient systems, water conservation measures, proper medical waste management, and climate-resilient infrastructure will enhance operational efficiency while minimizing environmental footprint. Additionally, the project aligns with national and county development priorities, including the promotion of universal health coverage and improved healthcare infrastructure.

In conclusion, the proposed Level VI hospital in Londiani is both environmentally and socially feasible, provided that the recommended mitigation and management measures are implemented effectively. The project presents substantial benefits that outweigh the anticipated impacts and is therefore recommended for approval and implementation as a critical investment in regional healthcare development and sustainability.

1.0 INTRODUCTION

1.1 Project Background

Health is a fundamental human right and a key pillar of social and economic development. Access to quality, affordable, and timely healthcare services is essential for improving population health outcomes, enhancing productivity, and supporting national development. In Kenya, the Government has prioritized health sector transformation through the implementation of Universal Health Coverage (UHC) as one of the “Big Four Agenda” pillars, with the aim of ensuring that all Kenyans can access essential health services without suffering financial hardship.

To achieve this goal, the Ministry of Health has undertaken reforms aimed at strengthening healthcare infrastructure, improving service delivery, and enhancing maternal, neonatal, and surgical care services across all levels of the health system. These reforms are guided by the Kenya Universal Health Coverage Policy 2020–2030, the Kenya Health Policy 2014–2030, and the Constitution of Kenya (2010), which guarantees every person the right to the highest attainable standard of health.

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:

- Catalyzing 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, Kericho County has been prioritized as one of the regions to benefit from the programme through the proposed construction and operationalization of the South Rift Level VI Teaching and Referral Hospital.

The Project Executing Agency (PEA) will be the Ministry of Health Kenya in collaboration with the Kericho 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 Kericho 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 South Rift Level VI Teaching and Referral 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 Kericho County and is expected to serve not only the local population but also neighboring 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.

1.2 Project Objectives

The overall objective of the proposed Construction of South Rift Level VI Teaching and Referral Hospital project is to improve access to quality, affordable, and specialized healthcare services for residents of Kericho County and the wider Rift Valley 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 center for surrounding counties and supporting lower-level health facilities.

1.3 Terms of Reference for the ESIA

The primary objective of the consultancy is to undertake a comprehensive study for the proposed construction of South Rift Level VI Teaching and Referral Hospital in order to determine the technical, environmental, social, and economic viability of the project.

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

- To assess the technicality 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;
- To analyze the economic and financial of the project, including capital investment costs, operational and maintenance costs, potential funding sources, and long-term sustainability;
- To assess demand and service need, including population projections, disease burden, healthcare gaps, and the hospital's role as a referral facility within Kericho County and neighboring regions;
- To undertake project alternatives analysis, including site alternatives, design options, technology choices, and the "no project" scenario;
- 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;
- To assess institutional and operational capacity, including staffing requirements, management structures, and governance frameworks necessary for effective hospital operation;
- To conduct stakeholder consultations with key stakeholders, including government agencies, local communities, and healthcare providers, to gather input and enhance project acceptability;
- To develop a preliminary Environmental and Social Management Framework (ESMF) outlining mitigation measures, monitoring mechanisms, roles and responsibilities, and implementation schedules;
- To prepare a comprehensive study report that provides clear recommendations on the viability of the project and guidance for subsequent design, financing, construction, and operation phases.

1.4 Methodology of the ESIA

For the purpose of the assessment and preparation of the ESIA Comprehensive Project Report, 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 Substantialll.
- 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.

1.5 Problem of the statement

The proposed establishment of the South Rift Level VI Teaching and Referral Hospital in Kericho County is driven by critical gaps in access to specialized healthcare services within the Southern Rift region. The region has an estimated population of 4,986,341 (KNBS, 2019), projected to increase to over 6 million by 2027 and approximately 6.47 million by 2030. Despite this growth, the region lacks a public Level VI referral facility, forcing patients to seek specialized treatment at Moi Teaching and Referral Hospital (MTRH) in Eldoret, which is already operating beyond optimal capacity.

The situation is further aggravated by the region's location along major transport corridors, particularly the Londiani–Kericho and Londiani–Muhoroni highways, which experience frequent and severe road traffic accidents. Recent incidents, including the July 2023 tragedy that resulted in over 50 fatalities, highlight the urgent need for a well-equipped trauma and emergency care facility within proximity. A significant number of deaths occur due to delayed access to specialized treatment, prolonged referral processes, and inadequate emergency response capacity in existing health facilities.

Healthcare facilities within Kericho County and the surrounding areas are constrained by limited infrastructure, insufficient specialized personnel, and inadequate equipment to manage complex and emergency cases. This results in high referral rates, delayed interventions, and avoidable morbidity and mortality. The absence of a Level VI facility therefore creates a critical service delivery gap, undermining equitable access to quality healthcare in the region.

The problem is driven by multiple factors, including rapid population growth, increasing incidence of road traffic accidents, rising demand for specialized care, and underinvestment in advanced healthcare infrastructure. The direct effects include preventable deaths, poor health outcomes, and overburdened referral systems, while indirect effects include economic losses, reduced productivity, and social strain on affected households and communities.

Although alternative measures such as upgrading existing facilities and strengthening referral systems may offer short-term relief, they are insufficient to address the scale and complexity of healthcare demands in the region. The establishment of a Level VI Teaching and Referral Hospital with an integrated trauma centre provides a sustainable, long-term solution by enhancing access to specialized care, reducing referral distances, and improving emergency response capacity.

The proposed project aligns with national development frameworks, including Kenya Vision 2030, the Constitution of Kenya (2010), the Kenya Health Policy 2014–2030, and the Universal Health Coverage (UHC) Policy 2020–2030, which emphasize equitable access to quality healthcare. At the local level, it directly addresses persistent healthcare infrastructure gaps in Kericho County and the wider South Rift region.

In addition to improving health outcomes, the project has strong socio-economic benefits, including reduced healthcare costs associated with referrals, improved patient safety, job creation during construction and operation, and enhanced overall community wellbeing. The development will be

implemented on designated land, with potential environmental and social impacts managed in compliance with the Environmental Management and Coordination Act (EMCA), public health regulations, and relevant occupational safety standards.

1.6 Proposed Solution

The proposed solution entails the construction and operationalization of South Rift Level (VI) Teaching and Referral Hospital as a modern referral healthcare facility designed to enhance access to quality, specialized, and emergency medical services within Kericho County and the wider Rift Valley 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 South Rift Level (VI) Teaching and Referral Hospital will not only improve healthcare delivery but also safeguard environmental quality and public health in the region.

1.7. Justification of the Project

Under the provisions of the Environmental Management and Coordination Act (EMCA), 1999 (as amended in 2015), and the EMCA (Environmental Impact Assessment and Environmental Audit) Regulations of 2003 (Revised in 2016), major infrastructure projects are required to undergo comprehensive assessment and planning prior to implementation. In accordance with Legal Notice No. 31 and Legal Notice No. 32 of 2019, the construction of a Level VI hospital is classified as a “High Risk Project,” thereby necessitating detailed study analysis to ensure environmental and social sustainability.

The proposed construction of the South Rift Level VI Teaching and Referral Hospital is therefore justified not only by regulatory requirements but also by its strong alignment with national and sectoral development priorities, demonstrated demand for healthcare services, and the critical role of government in addressing existing healthcare gaps.

i. Alignment with National and County Development Goals

The project directly supports key national development frameworks. It is aligned with Kenya Vision 2030, particularly under the social pillar, which prioritizes improved access to quality healthcare and the attainment of Universal Health Coverage (UHC) as a foundation for socio-economic transformation. By strengthening healthcare infrastructure and enhancing access to specialized services, the project contributes to the vision of transforming Kenya into a globally competitive and prosperous nation.

The project also aligns with the Kenya Health Policy (2014–2030), which emphasizes equitable access to quality healthcare services, reduction of maternal and child mortality, and strengthening of healthcare systems. By establishing a Level VI facility with advanced diagnostic, treatment, and training capabilities, the project directly addresses these strategic priorities.

Further, the project is consistent with the Kenya Kwanza Manifesto and the Bottom-Up Economic Transformation Agenda, which prioritize investment in health systems to improve population well-being, reduce inequalities, and enhance productivity. At the county level, the project responds to persistent healthcare infrastructure deficits and supports local development objectives aimed at improving service delivery and community health outcomes.

ii. Contribution to Sector Strategic Objectives

The project is aligned with the Fourth Medium Term Plan (MTP IV, 2023–2027) of Kenya Vision 2030, which identifies healthcare as a critical sector for achieving inclusive development. The MTP IV prioritizes responsive, equitable, affordable, and quality healthcare services for all citizens, as enshrined in the Constitution of Kenya (2010).

Specifically, the proposed hospital will contribute to sector outcomes by:

- Enhancing access to specialized and emergency healthcare services;
- Supporting Universal Health Coverage through improved service availability;
- Strengthening referral systems and reducing congestion in existing national referral hospitals;
- Promoting the use of modern medical technologies and innovation in healthcare delivery;
- Supporting training, research, and capacity building within the health sector; and
- Improving preparedness and response to public health emergencies.

iii. Demand Analysis and Quantitative Indicators

The need for the project is further justified by clear indicators of increasing demand for healthcare services in the South Rift region. Rapid population growth, rising disease burden, and increasing incidence of trauma cases have placed significant pressure on existing healthcare facilities.

The project is expected to contribute to the achievement of key national health targets, including:

- Reducing infant, newborn, and maternal mortality rates by at least 50%;
- Reducing the duration of illness and improving overall population health by at least 25%;
- Improving client satisfaction with healthcare services by at least 50%;
- Reducing catastrophic health expenditures by 30%; and
- Increasing life expectancy to approximately 72 years by 2030.

These indicators underscore the urgent need for expanded healthcare infrastructure and improved access to specialized services within the region.

iv. Rationale for Government Intervention

Government intervention in the proposed project is necessary due to the existing inequities in healthcare access and the limitations of the private sector in delivering large-scale, specialized, and equitable healthcare services. Currently, high-quality healthcare facilities are disproportionately concentrated in major urban centers, leaving regions such as the South Rift underserved.

The private sector, while playing an important complementary role, is often profit-driven and may not adequately address the needs of low-income and vulnerable populations. Therefore, public sector investment is essential to ensure equitable access to healthcare services, particularly for specialized and emergency care.

The project also aligns with the Government's commitment to Universal Health Coverage, which requires substantial investment in public health infrastructure, human resources, and service delivery systems. Public-Private Partnerships (PPPs) may complement government efforts; however, the government retains the primary responsibility of ensuring accessibility, affordability, and quality of healthcare services.

Failure to implement the project would result in continued reliance on distant referral facilities, delayed access to treatment, preventable morbidity and mortality, and increased socio-economic burden on households. It would also undermine the achievement of national health targets and perpetuate regional inequalities in healthcare provision.

v. Compatibility with Strategic Timeframes

The proposed project is consistent with the implementation timelines of national and sectoral development frameworks, particularly Vision 2030 and MTP IV (2023–2027). The development of the hospital within this period will significantly contribute to the realization of Universal Health Coverage targets and improved health outcomes by 2030.

By addressing current and projected healthcare needs, the project provides a timely and sustainable solution that supports both short-term and long-term strategic objectives. Its implementation within the current planning cycle ensures that the benefits of improved healthcare access, reduced mortality, and enhanced system resilience are realized within the stipulated national development timelines.

vi. Need for EIA Study and Sustainability Considerations

Given the scale, complexity, and potential environmental and social implications of the project, conducting a detailed EIA study is essential. The study provides critical information on site suitability, infrastructure requirements, environmental sensitivity, cost implications, and sustainability considerations.

The EIA study further ensures that the project adheres to principles of sustainable development by:

- Identifying potential environmental, social, and economic impacts during construction and operation phases;
- Recommending appropriate mitigation and enhancement measures;
- Promoting efficient utilization of natural resources such as land, water, and energy;
- Safeguarding ecological systems and preventing environmental degradation;
- Enhancing public health, safety, and community well-being; and
- Maximizing socio-economic benefits, including employment creation and improved healthcare access.

Although the project may initially present high environmental and social risks such as increased healthcare waste generation, pressure on water and energy resources, and construction-related impacts these risks can be effectively managed through proper planning, adoption of modern technologies, and strengthened institutional capacity.

1.8 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.

2. BASELINE INFORMATION OF THE PROJECT AREA

2.1 Location and Size

Kericho County is situated within Kenya's South Rift region. The proposed project site is located at coordinates -0.1645437, 35.5905757 on Plot L.R No. LONDIANI/TOWNSHIP/186 in Kericho County. The project area covers an estimated 34.3 hectares which is currently government-owned and is presently undeveloped, with no existing structures on the land.

The County borders Uasin Gishu County and Nandi County to the north, Baringo County to the northeast, Nakuru County to the east, Bomet County to the south, and Kisumu County and Homa Bay County to the west. The County is situated along a key regional transport corridor that connects the central and coastal parts of Kenya to neighboring countries such as Uganda, Tanzania, South Sudan, Rwanda, and Burundi.

The County is traversed by major highways including the Londiani–Kericho and Londiani–Muhoroni roads, which form part of the northern transport corridor. These routes facilitate movement of people and goods but are also associated with a high incidence of road traffic accidents, creating increased demand for emergency and specialized healthcare services.

Kipkelion East Sub-County, where the proposed project is located, lies along this busy transport corridor. Specifically, the project site is in Kedowa/Kimugul Ward, a location that experiences significant traffic flow and accident-related emergencies. The area is therefore strategically suitable for the establishment of a Level VI Teaching and Referral Hospital to serve both the local population and transit patients.

Kericho Town, the County headquarters, is the main urban centre and lies approximately 256 km from Nairobi City. The County is globally known for its extensive tea plantations and favorable highland climate, which support agricultural productivity and economic growth.

The strategic location of Kericho County within the South Rift, coupled with its accessibility, growing population, and position along a major transport corridor, makes it an ideal site for the proposed South Rift Level VI Teaching and Referral Hospital, which is expected to serve not only the County but also the wider South Rift region and parts of East Africa.

2.2 Administrative Units.

Kericho County comprises six administrative sub-counties, namely Ainamoi, Belgut, Bureti, Kipkelion East, Kipkelion West, and Soin/Sigowet, which are further subdivided into a total of thirty wards, 85 locations and 209 sub locations.

2.3 Biophysical Setting.

2.3.1 Climate

Kericho County experiences a cool and humid highland equatorial climate characterized by moderate

temperatures and reliable rainfall throughout the year. Mean maximum (daytime) temperatures range between approximately 23°C and 26°C, while mean minimum (night-time) temperatures range between 10°C and 14°C. The warmest periods are typically experienced between January and March, while the coldest months occur between June and August. The County receives high annual rainfall ranging from about 1,800 mm to 2,500 mm, making it one of the wettest regions in Kenya. The western and central highland areas, particularly in Belgut, Ainamoi, and Bureti sub-counties, receive the highest rainfall, while relatively lower amounts are recorded in parts of Kipkelion East and Kipkelion West sub-counties.

Rainfall in Kericho County follows a bimodal pattern, with the long rains occurring between March and May (MAM) and the short rains between October and December (OND), although rainfall is fairly well distributed across most months. This consistent rainfall supports the County's dominance in tea farming and other agricultural activities. However, in recent years, the County has experienced increasing climate variability, including occasional prolonged rainfall, flooding, and unpredictable dry spells, which have begun to affect agricultural productivity and livelihoods.

Kericho Town records an average annual temperature of about 18°C and receives approximately 2,000 mm of rainfall annually. March is generally the warmest month, while July tends to be the coldest, reflecting the County's relatively stable but cool climatic conditions throughout the year.

2.3.2 Geology and soils

a). Geology

Kericho County is largely underlain by volcanic formations associated with the western Kenya highlands and the eastern margins of the East African Rift System. The dominant geological units comprise Tertiary volcanic rocks, including extensive basaltic and phonolitic lava flows, tuffs, and volcanic ash deposits that were formed through successive volcanic eruptions. These volcanic materials occur as thick sequences of agglomerates, breccias, and pyroclastic deposits interbedded with lava flows. The rocks are rich in minerals such as olivine, feldspar, augite, and iron oxides, which contribute to the fertility of the derived soils.

In some parts of the County, particularly towards the western and southern margins, the volcanic cover overlies older Precambrian Basement System rocks. These include metamorphic formations such as gneisses and schists, which were formed under intense pressure and temperature conditions. Over time, prolonged weathering and tectonic influences have shaped the current landscape, resulting in gently undulating terrain interspersed with steep escarpments and river valleys. The interaction between volcanic activity and long-term erosion has led to the formation of deep weathering profiles, which are characteristic of Kericho's highland environment.

b). Soils

The soils of Kericho County are predominantly derived from volcanic parent materials and are among the most fertile in Kenya. The dominant soil types are deep, well-drained red and dark brown loamy soils, commonly classified as nitisols. These soils are rich in organic matter, have good structure, and exhibit high water retention capacity, making them highly suitable for tea cultivation, which is the main agricultural activity in the County. In addition, andosols are found in areas with relatively recent volcanic

ash deposits, characterized by their high porosity and strong moisture-holding capacity.

Soil characteristics vary across the County depending on the underlying geology, topography, and land use practices. Areas with steeper slopes tend to have shallower soils that are more susceptible to erosion, while flatter areas support deeper and more stable soil profiles. In some zones, especially where there is a higher clay content, soils may exhibit moderate to high water retention but can also become prone to waterlogging if drainage is poor.

Soil erosion is a significant environmental concern in Kericho County due to high rainfall intensity, sloping terrain, and continuous agricultural activities. The main forms of erosion include splash erosion, sheet erosion, rill formation, and gully erosion. Contributing factors include deforestation, over-cultivation, and inadequate soil conservation measures. Construction activities, such as excavation and land clearing, can further expose soils to erosion by wind and surface runoff, increasing the risk of land degradation if appropriate mitigation measures are not implemented.

2.4 Hydrology

Kericho County is endowed with a well-developed drainage system due to its high rainfall and elevated terrain within the western highlands of Kenya. The County forms part of the catchment areas that drain into Lake Victoria to the west and Lake Nakuru to the east through an interconnected network of rivers and streams. Major rivers traversing the County include the Sondu-Miriu River, Nyando River, and Kipsonoi River, which originate from the highland areas and flow through steep valleys before joining larger drainage basins. These rivers are largely perennial, sustained by consistent rainfall throughout the year.

The project area, located in Kipkelion East Sub-County (Kedowa/Kimugul), lies within a hydrologically active zone characterized by small seasonal and permanent streams that drain into the larger river systems such as the Nyando and Sondu-Miriu basins. Surface water flow in the area is influenced by the undulating topography, with runoff moving from higher elevations to lower plains, particularly during the rainy seasons. Due to the high rainfall experienced in the County, the area exhibits moderate to high surface runoff, which contributes to streamflow but also increases the potential for localized flooding, soil erosion, and sediment transport if not properly managed.

Groundwater occurrence in Kericho County is generally associated with weathered volcanic rocks and fractured zones within the underlying geology. These formations provide moderate groundwater potential, supporting boreholes and shallow wells used for domestic and institutional water supply. In the project area, groundwater is expected to occur at moderate depths, with yields varying depending on the degree of weathering and fracturing of the volcanic formations. However, groundwater recharge is relatively high due to consistent rainfall and permeable soils.

Overall, the hydrological regime of the project area is favorable for water resource availability, which is critical for the proposed Level VI hospital. However, proper drainage planning, stormwater management, and protection of nearby water sources will be necessary to mitigate risks such as flooding, contamination, and sedimentation during both construction and operation phases.

1.4 Vegetation Cover

Kericho County is characterized by dense and well-established vegetation cover largely influenced by its high rainfall, fertile volcanic soils, and cool highland climate. The natural vegetation in the County originally consisted of moist upland forests and grasslands, although much of this has been modified by human activities. Significant remnants of indigenous forest are found in areas such as the Mau Forest Complex, which forms one of the largest water towers in Kenya and plays a critical role in regulating the County's hydrology and climate. These forested areas are dominated by a mix of hardwood tree species, shrubs, and undergrowth vegetation.

Currently, the dominant vegetation cover in Kericho County is agricultural, with extensive tea plantations forming the most notable landscape feature. Large-scale tea estates and smallholder tea farms cover vast areas, particularly in Belgut, Ainamoi, and Bureti sub-counties, creating a continuous green cover. Other crops such as maize, beans, and horticultural crops are also grown, interspersed with patches of planted trees, woodlots, and hedgerows. In some areas, especially in Kipkelion East and Kipkelion West, there are also grasslands used for livestock grazing.

The project area is predominantly characterized by agricultural vegetation, including tea farms, subsistence crops, and scattered trees. The vegetation is largely modified, with limited presence of natural or indigenous plant species due to continuous cultivation and settlement. Riparian vegetation may be present along nearby streams, consisting of grasses, shrubs, and occasional trees that help stabilize riverbanks and reduce erosion.

Overall, vegetation cover in the project area is relatively stable but highly influenced by human land use. Potential impacts on vegetation during project implementation may include clearance of existing crops and trees, which will require appropriate mitigation measures such as replanting, landscaping, and conservation of riparian buffers to maintain ecological balance.

1.5 Fauna

Kericho County supports a range of fauna influenced by its highland climate, vegetation cover, and proximity to major ecological systems such as the Mau Forest Complex. The County is not a major wildlife conservation area, but it hosts a variety of common terrestrial and avian species, particularly within forested areas, farmlands, and riparian zones. Indigenous forest areas provide habitat for small to medium-sized mammals such as monkeys (e.g., colobus and vervet), bush babies, squirrels, and occasionally larger mammals like bushbucks and duikers. Reptiles such as snakes and lizards are also present, though generally not abundant.

Birdlife in the County is diverse due to the favorable climate and vegetation. Common bird species include weaver birds, sunbirds, hornbills, doves, and various raptors. Wetland and riparian areas support additional species such as herons and kingfishers. The mix of forest remnants, agricultural landscapes, and water sources creates suitable habitats for both resident and migratory bird species.

In the project area located in Kipkelion East Sub-County (Kedowa/Kimugul), fauna is largely limited to species adapted to human-modified environments. These include small mammals such as rodents, hares, and bats, as well as reptiles like small snakes and lizards. Bird species are more prominent,

especially those adapted to agricultural areas, including seed-eaters and insectivores. Livestock such as cattle, sheep, and goats are also common, reflecting the agro-pastoral nature of the area.

Overall, the project area does not host any known endangered or protected wildlife species, and fauna presence is relatively low due to ongoing agricultural activities and human settlement. However, construction activities may cause temporary disturbance to local fauna through noise, habitat disruption, and increased human presence. Appropriate mitigation measures such as minimizing vegetation clearance, controlling noise levels, and maintaining ecological buffers especially along riparian zones will help reduce potential impacts on local fauna.

1.6 Social Economic Baseline.

Kericho County has a predominantly rural population whose livelihoods are largely based on agriculture and related activities. The County's economy is driven by both large-scale and smallholder farming, with tea being the dominant cash crop produced extensively across sub-counties such as Ainamoi, Belgut, and Bureti. Other key crops include maize, beans, potatoes, and horticultural produce, while livestock keeping particularly dairy farming also contributes significantly to household incomes. In the project area of Kipkelion East Sub-County (Kedowa/Kimugul Ward), the local economy is similarly agro-based, with residents engaged in tea farming, subsistence agriculture, and small-scale trade.

Population growth in Kericho County has been steady, resulting in increased demand for social services, employment opportunities, and infrastructure. Settlement patterns are largely dispersed in rural areas, with emerging trading centers such as Londiani serving as local economic hubs. The project area is characterized by a mix of rural homesteads and small trading centers, with moderate population density and increasing urbanization trends driven by improved road connectivity.

In terms of infrastructure, Kericho County is relatively well connected by road networks, including major highways such as the Londiani–Kericho and Londiani–Muhoroni roads, which enhance mobility of people and goods. However, access to reliable water supply, sanitation, and electricity varies across the County, with rural areas experiencing occasional shortages or limited coverage. The project area has basic infrastructure in place, though improvements may be required to support a large-scale development such as the proposed Level VI hospital.

Access to healthcare services in the County is currently limited in terms of specialized care. Existing facilities, including Kericho County Referral Hospital and several sub-county hospitals, provide general medical services but lack advanced diagnostic and treatment capacity. As highlighted in the project concept (Ministry of Health), patients requiring specialized care are often referred to Moi Teaching and Referral Hospital, leading to delays, congestion, and, in some cases, loss of life. This underscores the need for the proposed Level VI facility to enhance healthcare access in the South Rift region.

Education levels in the County are moderate, with access to primary and secondary schools widely available, although tertiary and specialized training institutions are fewer. Employment opportunities are largely informal, with many residents engaged in farming, small businesses, and casual labor. Poverty levels remain a concern in some areas, affecting access to essential services such as healthcare, education, and clean water. The socio-economic conditions of Kericho County and the project area

indicate a strong reliance on agriculture, moderate infrastructure development, and limited access to specialized healthcare services. The proposed project is therefore expected to significantly improve healthcare access, create employment opportunities, and stimulate local economic growth while contributing to improved social well-being.

1.7 Settlement Patterns.

Kericho County exhibits a predominantly rural settlement pattern characterized by dispersed homesteads interspersed with agricultural land. Most residents live in individual farmsteads surrounded by tea plantations, food crop farms, and grazing areas. This scattered settlement structure is largely influenced by the County's reliance on agriculture, availability of fertile land, and customary land ownership systems. In high-potential agricultural zones such as Ainamoi, Belgut, and Bureti, settlements are closely associated with tea estates and smallholder farms, creating a semi-dispersed pattern with relatively higher population densities.

Urban and peri-urban settlement patterns are concentrated in major towns and trading centers, including Kericho Town and Londiani. These centers serve as administrative, commercial, and service hubs, attracting more compact and nucleated settlements. Growth in these areas has been driven by improved road infrastructure, economic activities, and access to services such as education, healthcare, and markets. As a result, there is a gradual transition from rural dispersed settlements to more clustered urban forms in these locations.

In the project area, the settlement pattern is predominantly rural and dispersed, with homesteads spread across agricultural land. Small trading centers exist along major roads, forming localized clusters of commercial and residential development. The proximity to key transport corridors, particularly around Londiani, has contributed to increasing settlement density and the emergence of peri-urban characteristics in some sections.

1.8 Population and demographics

According to the 2019 Kenya Population and Housing Census, Kericho County had a total population of 901,777 of which 450,741 are males, 451,008 females and 28 intersex persons. There are 206,036 household with an average household size of 4.4 persons per household and a population density 370 people per square kilometre.

The total population of Kericho is estimated to have grown significantly. Official projections from the Kenya National Bureau of Statistics (KNBS) suggest that the county's population will reach approximately 1.2M by 2030-40, with a 2026 estimate of roughly one million people.

2.10 Health

Kericho County has a total of 435 operational health facilities. This total includes public, private, and faith-based providers that have been integrated into the national Social Health Authority (SHA) framework for service delivery. The county has achieved an immunization coverage of 90% for essential vaccines like the third dose of the pentavalent vaccine. In July 2025, Kericho rolled out a massive 10-day integrated campaign targeting 95% coverage for measles, rubella, and typhoid to close the immunity gaps that widened during the COVID-19 pandemic.

3. LEGAL, POLICY FRAMEWORK AND INSTITUTIONAL FRAMEWORK

3.1 Environmental Policy

The Kenya's Government environmental policy aims at integrating environmental aspects into the national development plans. The broad objectives of the national environmental policy include:

- Optimal use of natural land and water resources in improving the quality of human environment;
- Sustainable use of natural resources to meet the needs of the present generation while preserving their ability to meet the needs of the future generation;
- Integrate environmental conservation and economic activities into the process of sustainable development;
- Meet national goals and international obligations by conserving biodiversity, arresting desertification, mitigating the effects of disasters, protecting the ozone layer and maintaining ecological balance on the earth.

ESIAs are carried out in order to identify potential positive and negative impacts associated with the proposed project with a view to taking advantage of the positives impacts and developing mitigation measures for the negative ones. The guidelines on EIAs are contained in sections 58 to 67 of the Act. According to section 68 of the environmental management and coordination Act (EMCA) 1999 (Amended 2015), The Authority shall be responsible for carrying out environmental audits on all activities that are likely to have a significant effect on the environment.

Environmental auditing (EA) is a tool for environmental conservation and has been identified as a key requirement for existing facilities to ensure sustainable operations with respect to environmental resources and socio-economic activities in the neighborhood of the facilities.

The government has established regulations to facilitate the process on EIAs and environmental audits. The regulations are contained in the Kenya Gazette Supplement No. 56, legislative supplement No. 31, and legal notice No. 101 of 13th June 2003 (Amended 2019).

In the past, the government has established a number of National policies and legal statutes to enhance environmental conservation and sustainable development.

The key objectives of the Policy include: -

To ensure that from the onset, all development policies, programmes and projects take

environmental considerations into account, to ensure that an independent environmental impact assessment (EIA) report is prepared for any industrial venture or other development before implementation,

To come up with effluent treatment standards that will conform to acceptable health guidelines. Under this paper, broad categories of development issues have been covered that require a “sustainable development” approach. These issues relate to waste management and human settlement. The policy recommends the need for enhanced re-use/recycling of residues including wastewater, use of low or non-waste technologies, increased public awareness rising and appreciation of a clean environment. It also encourages participation of stakeholders in the management of wastes within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others.

3.2 The Constitution of Kenya 2010

The Constitution of Kenya (2010) recognizes healthcare as a fundamental human right and places an obligation on the State to ensure access to the highest attainable standard of health for all citizens. Article 43(1)(a) guarantees every person the right to the highest attainable standard of health, including reproductive healthcare, while Article 43(2) provides that no person shall be denied emergency medical treatment. These provisions establish the legal foundation for investment in healthcare infrastructure and service delivery, particularly facilities that provide essential, lifesaving, and specialized medical services.

The Constitution further emphasizes the protection of vulnerable groups, particularly women, children, and persons with disabilities. Article 53(1)(c) guarantees every child the right to basic nutrition and healthcare, and Article 53(2) requires that the best interests of the child be of paramount importance in all matters concerning children. In addition, Article 54(1)(a) obligates the State to ensure that persons with disabilities have access to health facilities and services that are responsive to their needs. These constitutional provisions underscore the importance of strengthening maternal, neonatal, and child health services through appropriate and accessible health infrastructure.

National values and principles of governance set out under Article 10 of the Constitution, including equity, inclusiveness, social justice, human dignity, and sustainable development, guide public service delivery and development planning. These principles require that public health investments promote equitable access to quality healthcare services, efficient use of public resources, and long-term sustainability.

The proposed construction of South Rift level (VI) hospital in Londiani, Kericho County is therefore directly aligned with the Constitution of Kenya (2010). The construction works are in line with the fulfillment of Articles 43 and 53. By improving service capacity and quality of care at the county level, the project advances constitutional values, supports the right to health, and contributes to equitable and sustainable healthcare delivery for the Londiani Community.

3.3 Legal Aspects (Kenyan Legislations)

The key national laws that govern the management of environmental resources in the country have been briefly discussed in the following paragraphs. Note that wherever any of the laws contradict each other, the Environmental Management and Coordination Act 1999 (Amended 2015) prevail.

3.3.1 The Environment Management and Coordination Act, 1999 (Amended 2015)

The Environmental Management and Coordination Act is the principal legal framework governing environmental management and protection in Kenya. Part II of the Act provides that every person in Kenya has the right to a clean and healthy environment and has a corresponding duty to safeguard and enhance the environment. This provision places an obligation on project proponents to ensure that development activities are planned and implemented in a manner that prevents environmental degradation and protects public health.

Section 58 of EMCA requires that an Environmental Impact Assessment (EIA) be conducted for all projects listed under the Second Schedule of the Act that are likely to have significant environmental impacts. The proposed Construction works falls under this schedule as a medium-risk development. In compliance with this requirement, the project proponent has commissioned this EIA study to identify potential environmental and social impacts and propose appropriate mitigation measures prior to project implementation.

Part VII, Section 68 of the Act requires operators of projects to undertake environmental audits to assess the level of compliance with the conditions set out in the approved EIA report and licence. The audit findings must be submitted to the National Environment Management Authority (NEMA). This provision ensures continued environmental accountability during the operational phase of the hospital and confirms adherence to approved mitigation and monitoring measures.

Part VIII of EMCA provides regulations on pollution control and waste management. Sections 72 to 74 prohibit the discharge of toxic, noxious, or polluting substances into the aquatic environment without authorization and require projects generating effluent to obtain the necessary permits before discharging into sewerage systems. Section 87 prohibits improper disposal of waste that may cause pollution or harm to human health, while Sections 88 and 89 require licensing for waste generation, transportation, and disposal, including hazardous healthcare waste. Sections 90 to 100 further regulate the handling, storage, and management of hazardous substances such as chemicals and oils, which are relevant to hospital operations. Additionally, Section 102 prohibits noise emissions beyond prescribed standards, requiring the project to control noise during construction and operation. Compliance with these provisions will ensure environmentally sound construction and operation of the hospital.

3.3.2 Environmental Management and Co-ordination (Air Quality) Regulations, 2024

The Environmental Management and Co-ordination (Air Quality) Regulations, 2024 were

promulgated under Legal Notice No. 180 of 2024 with the objective of preventing, controlling, and abating air pollution in order to safeguard public health and ensure a clean and healthy environment. The regulations provide standards for ambient air quality, define permissible emission limits, and prescribe control measures for both mobile and stationary sources of air pollution. They prohibit any activity that directly or indirectly results in air pollutant concentrations exceeding the limits specified in the First Schedule, including particulate matter, gaseous emissions, and other priority pollutants.

The regulations further require that all project proponents ensure compliance with prescribed ambient air quality standards and implement appropriate pollution prevention measures. They emphasize the need for monitoring, reporting, and management of emissions, particularly in sensitive environments such as healthcare facilities. The regulations also address fugitive emissions, including dust and exhaust emissions from construction sites, equipment, and vehicles, and require that such emissions be effectively controlled to prevent deterioration of local air quality. Where necessary, designated controlled areas may be declared, requiring the preparation and implementation of air quality management plans.

These regulations are directly relevant to the proposed constructions of the south Rift level (VI) hospital as construction activities associated with the development works which includes excavation, material handling, earthworks, operation of construction machinery, and movement of vehicles, all of which can produce dust, particulate matter, and exhaust emissions that may affect patients, healthcare workers, and surrounding communities.

In order to comply with the Air Quality Regulations, 2024, the project proponent will implement mitigation measures outlined in the Environmental Management Plan (EMP). These measures will include regular water spraying to suppress dust, proper covering and storage of construction materials, minimizing idling of machinery, maintaining equipment in good working condition to reduce exhaust emissions, and controlling movement of construction vehicles within the site. During operation, proper ventilation systems, controlled emissions from generators (if any), and good housekeeping practices will be maintained to ensure that air pollutant levels remain within permissible limits. Compliance with these regulations will help protect vulnerable hospital users, including pregnant women, newborns, and critically ill patients, while ensuring alignment with national requirements for clean and healthy ambient air.

3.3.3 Environmental Management and Co-ordination (Waste Management) Regulations, 2024 states that: -

The Environmental Management and Co-ordination (Waste Management) Regulations, 2024 were enacted to provide a comprehensive framework for the segregation, handling, storage, transportation, treatment, and disposal of waste in order to protect human health and the environment. Regulation 4 places a general duty on every waste generator to minimize waste generation and to manage waste in a manner that does not cause pollution or harm to human health. The Regulations further emphasize adherence to the waste hierarchy, prioritizing waste reduction, reuse, recycling, recovery, and disposal as a last resort.

Regulation 6 requires waste generators to segregate waste at the point of generation into appropriate categories, while Regulation 7 mandates that waste be stored in designated, clearly labelled containers that prevent leakage, spillage, and contamination. For hazardous waste, including healthcare waste, Regulation 10 provides that such waste must be handled, stored, and disposed of separately from general waste using approved containment systems. The Regulations also prohibit mixing hazardous waste with non-hazardous waste and require implementation of specific safety measures to protect workers and the public.

These provisions are directly applicable to the proposed project, which will generate various waste streams during construction and operation. During construction, waste will include excavated materials, construction debris, packaging waste, and surplus materials. During operation, the hospital will generate healthcare waste, including infectious waste, sharps, pathological waste, pharmaceutical waste, chemical waste, and general domestic waste.

In accordance with Regulation 13, the hospital will ensure that hazardous healthcare waste is transported only by NEMA-licensed waste transporters and disposed of at licensed treatment and disposal facilities. Regulation 15 requires waste generators to maintain records of waste generation, transportation, treatment, and disposal, which will be adhered to by the hospital management. In addition, Regulation 17 obligates occupiers of facilities generating hazardous waste to provide appropriate training and personal protective equipment (PPE) to workers involved in waste handling.

The hospital will further comply with Regulation 19, which requires operators to develop and implement a Waste Management Plan outlining procedures for waste segregation, collection, storage, transportation, treatment, and disposal. Through implementation of a healthcare-specific waste management system consistent with Ministry of Health guidelines and international best practice, The Hospital will ensure compliance with the Environmental Management and Co-ordination (Waste Management) Regulations, 2024, minimize environmental pollution, protect public health, and promote safe and sustainable healthcare service delivery.

3.3.4. The Environmental Management and Co-ordination (Water Quality) Regulations, 2024

The Environmental Management and Co-ordination (Water Quality) Regulations, 2024 were enacted to provide a comprehensive framework for the protection, conservation, and sustainable management of water resources in Kenya. The Regulations aim to prevent water pollution and protect public health by prescribing water quality standards, effluent discharge limits, and monitoring requirements for activities that may affect surface water, groundwater, and sewerage systems.

Regulation 4 provides that no person shall discharge any effluent, wastewater, or pollutant into the aquatic environment unless such discharge complies with the water quality standards set out

in the Regulations. Regulation 6 further requires that all effluent discharged into the environment or public sewerage systems must meet the limits specified in the First and Second Schedules, which outline permissible levels for physical, chemical, and biological parameters. These provisions are intended to safeguard water quality and prevent contamination of water resources.

The Regulations are particularly relevant to the proposed expansion of the Hospital which will generate wastewater and effluent during both construction and operational phases. Construction activities may result in increased sediment-laden runoff, while operational activities from the theatre will generate domestic and healthcare-related wastewater. Without proper management, such effluent could adversely affect surface and groundwater quality within the area.

In accordance with Regulation 8, the hospital will ensure that all wastewater and effluent are discharged only into approved sewerage systems or treated through appropriate on-site treatment facilities, subject to issuance of the necessary discharge permits by the relevant authorities. Regulation 10 requires waste generators to submit accurate information on the quantity and quality of effluent generated, which will be complied with through routine monitoring and record keeping. Measures such as proper drainage design, oil and grease traps, and controlled discharge will be implemented to prevent pollution.

Further, Regulation 16 mandates regular monitoring of effluent quality to ensure compliance with prescribed standards, while Regulation 18 prohibits the discharge of untreated effluent or any substances that may cause pollution to water bodies. Through implementation of the Environmental Management Plan (EMP), including effluent control, monitoring, and reporting measures, the proposed Project will comply with the Environmental Management and Co-ordination (Water Quality) Regulations, 2024, protect downstream water resources, and safeguard public health and environmental integrity.

3.3.5. Noise and Excessive Vibration Pollution (Control) Regulation, 2009

The Noise and Excessive Vibration Pollution (Control) Regulations, 2009 were enacted under the Environmental Management and Co-ordination Act (EMCA) to control noise and vibration levels in order to protect public health, environmental quality, and human comfort. Regulation 3(1) provides that no person shall make or cause to be made any loud, unreasonable, unnecessary, or unusual noise that annoys, disturbs, injures, or endangers the comfort, health, or safety of others. The Regulations prescribe maximum permissible noise levels for different land-use zones, including silence zones and sensitive areas such as hospitals.

Regulation 4 requires that noise emissions from any activity remain within the limits specified in the First Schedule, while Regulation 5 prohibits excessive vibration that may cause damage to buildings, structures, or discomfort to occupants. Regulation 6 provides for the designation of silence zones, which include health facilities, and requires that activities within or adjacent to such zones be conducted in a manner that minimizes noise and vibration impacts. Where

construction or other potentially noisy activities are unavoidable, the Regulations require that adequate mitigation measures be implemented to protect sensitive receptors.

In compliance with Regulation 7, the project proponent will implement noise control measures including restricting construction activities to daytime hours, using well-maintained and low-noise equipment, and installing temporary noise barriers where necessary. Regulation 10 requires that any person intending to carry out activities that may generate excessive noise apply for a noise permit from NEMA, which will be obtained where applicable. In addition, advance notification will be provided to hospital management and staff to facilitate scheduling of sensitive medical procedures.

Further, Regulation 13 requires continuous monitoring and mitigation of noise and vibration levels to ensure compliance with prescribed limits. The project will establish a construction management plan that includes coordination with hospital operations, scheduling of noisy activities away from critical care areas and peak service hours, and continuous supervision to minimize disturbance. Through strict adherence to the Noise and Excessive Vibration Pollution (Control) Regulations, 2009, the proposed project will ensure that construction activities do not compromise patient safety, healthcare service delivery, or the wellbeing of hospital staff and surrounding communities.

3.3.6. The Health Act, 2017

The Health Act, 2017 provides the overarching legal framework for the regulation, management, and delivery of healthcare services in Kenya. It operationalizes the constitutional right to health under Article 43 and establishes standards for health facilities, health services, health personnel, and patient rights. The Act requires health facilities to meet prescribed infrastructure, service quality, safety, and hygiene standards and promotes integration of preventive, promotive, curative, and rehabilitative services.

This Act is directly relevant to the proposed project as it supports the development of adequate infrastructure for maternal, neonatal, and surgical services and emphasizes quality, safety, and continuity of care.

3.3.7. The County Government Act, 2012

The County Government Act was enacted in 2012 to give effect to chapter eleven of the constitution of Kenya (2010) and to provide for county governments powers, function and responsibilities to deliver services and for connected purposes. The county government act repealed the local Government act and took up transferred the function of the Local authorities to the county Government. The proponent is within the Jurisdiction of Kericho County and is affected by all legislations passed in the county and will comply with all the laws passed by the county.

3.3.8. The Physical Planning Act (Cap 286)

Section 30 states that any person who carries out development without permission will be required to restore the land to its original condition. It also states that NO other licensing authority shall grant license for commercial or industrial use or occupation of any building without a development permission granted by the respective local authority.

Finally, section 36 states that if in connection with a development application, local authority is of the opinion that the proposed development activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an environmental impact assessment (EIA) report. EMCA, 1999 (Amended 2015) echoes the same by requiring that such an EIA is approved by the National Environmental Management Authority (NEMA) and should be followed by annual environmental audits.

3.3.9. The Building Code (2000)

Section 194 requires that where a sewer exists, the occupants of the nearby premises shall apply to the local authority for a permit to connect to the sewer line and that all wastewater must be discharged into the sewers. The code also prohibits construction of structures or buildings on sewer lines.

3.3.10. Water Act 2016

The Water Act, 2016 provides the legal framework for the management, protection, conservation, use, and control of water resources in Kenya. The Act gives effect to Article 43(1)(d) of the Constitution by ensuring every person's right to clean and safe water in adequate quantities and establishes institutions responsible for water resource regulation, water services provision, and wastewater management. It places an obligation on all persons and institutions to use water resources sustainably and to prevent pollution of surface and groundwater sources.

Section 72 of the Act prohibits the pollution of water resources and makes it an offence to discharge any effluent, wastewater, or substance that may degrade water quality without authorization. Section 73 requires any person who discharges effluent into a water resource or public sewer to obtain the necessary permit and to comply with prescribed effluent quality standards. These provisions are intended to safeguard public health, protect aquatic ecosystems, and ensure that water resources remain fit for domestic and institutional use.

The Water Act is directly relevant to the proposed Project.

In compliance with the Water Act, 2016, the hospital will utilize approved water supply systems and ensure efficient water use through good housekeeping practices and maintenance of plumbing infrastructure. All wastewater generated will be discharged into approved sewerage systems or treated through appropriate on-site wastewater management facilities, subject to the necessary permits from the relevant authorities. Measures such as proper drainage design, separation of stormwater and wastewater systems, installation of grease traps for kitchen effluent, and regular monitoring of wastewater quality will be implemented. Through these measures, the proposed project will comply with the Water Act, 2016, protect water resources,

and support sustainable and safe healthcare service delivery during both construction and operation.

3.3.11 The Occupational Safety and Health Act, 2007

The Occupational Safety and Health Act (OSHA), 2007 provides the legal framework for the protection of the safety, health, and welfare of workers and all persons lawfully present at workplaces. Section 6(1) of the Act places a general duty on every employer to ensure Z safety, health, and welfare at work of all employees. This includes provision of a safe working environment, safe systems of work, and protection against risks to health arising from work activities. Section 6(2) further requires employers to ensure that persons who are not employees, including patients and visitors, are not exposed to health and safety risks arising from workplace activities.

These provisions are directly applicable to the proposed construction of South Rift level (VI) Hospital. In compliance with Sections 6 and 9, the project proponent and contractors will implement measures such as segregation of construction zones, controlled access, clear safety signage, and coordination with hospital management to ensure that patients, healthcare workers, and visitors are not exposed to construction-related hazards such as falling objects, dust, noise, and moving machinery.

During the construction phase, Section 10 of the Act requires the provision and maintenance of safe plant, machinery, and equipment, while Section 13 obligates employers to provide adequate information, instruction, training, and supervision to workers. In addition, Section 14 requires employees to use provided safety equipment and comply with safety procedures. Accordingly, construction workers will be provided with appropriate Personal Protective Equipment (PPE) including helmets, safety boots, gloves, reflective jackets, and fall-arrest systems where applicable, and will undergo safety induction and ongoing supervision throughout the construction period.

The Act is also highly relevant to the operational phase of the hospital. Section 70 requires workplaces to maintain cleanliness and avoid accumulation of waste that may pose health risks, while Section 73 requires adequate ventilation in workplaces. These provisions apply to the hospital where proper ventilation, hygiene, and housekeeping are critical. Further, Section 83 addresses handling, storage, and use of hazardous substances, requiring employers to assess risks and put in place protective measures. This is particularly applicable to healthcare workers who may be exposed to chemicals, disinfectants, pharmaceuticals, anesthetic gases, and biological agents.

In addition, Section 78 requires the provision of suitable washing facilities, sanitary conveniences, and drinking water for workers, which will be incorporated into the design and operation of the expanded hospital facilities. Section 44 mandates preparation and implementation of emergency procedures, including fire safety and evacuation plans. In compliance, the hospital will maintain functional fire detection and suppression systems, clearly marked emergency exits, safe storage of medical gases, and regular emergency drills. Through adherence to these specific provisions

of the Occupational Safety and Health Act, 2007, the proposed will ensure a safe working environment during both construction and operation, while protecting the health and safety of workers, patients, and the general public.

3.3.12 The Energy Act (2016)

The Energy Act was enacted in the year 2006. Section 4 of the Act establishes the Energy Regulatory Commission (ERC). The ERC is a single sector regulatory agency, with responsibility for economic and technical regulation of electric power, renewable energy and downstream Petroleum sub-sectors, including tariff setting and review, licensing, enforcement, dispute settlement and approval of power purchase and network service contracts.

3.3.13 The Public Health Act Cap 242

The Public Health Act (Cap. 242) provides the legal framework for the promotion and protection of public health in Kenya and empowers public health authorities to prevent conditions that may be injurious to human health. Section 115 of the Act defines circumstances that constitute a nuisance or are dangerous to health, including accumulation of waste, poor drainage, overcrowding, and unsanitary conditions, while Section 116 obligates occupiers and owners of premises to prevent the occurrence of such nuisances. The Act further mandates proper sanitation, waste management, ventilation, drainage, and control of pollution to safeguard public health within residential, institutional, and public facilities.

The Public Health Act is directly relevant to the proposed Project; the project will involve construction and operation of healthcare facilities within a populated urban area. Compliance with the Act will be achieved through provision of adequate sanitation facilities, proper drainage and wastewater management, effective solid and healthcare waste handling systems, and maintenance of clean, well-ventilated wards and theatres. During construction, measures will be taken to control dust, noise, waste, and stagnant water to prevent health risks to patients, staff, and surrounding communities. During operation, adherence to public health standards will ensure that the expanded hospital facilities do not create conditions injurious to health, thereby supporting safe, hygienic, and efficient healthcare service delivery in line with statutory public health requirements.

3.4 International Legislations.

3.4.1 World Health Organization guidelines.

The World Health Organization provides authoritative technical guidance on the planning, construction, and operation of healthcare facilities through a range of standards, guidelines, and recommendations. In the *WHO Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level (2016)*, WHO states that health facilities must be designed and operated to minimize the risk of healthcare-associated infections through adequate infrastructure, including sufficient space, reliable water supply, appropriate ventilation, hand hygiene facilities, and proper healthcare waste management systems. The guideline emphasizes that infection prevention and control measures must be

integrated into the physical design of hospitals.

In the *WHO Safe Surgery Guidelines (2009)* and the *WHO Standards for Improving Quality of Maternal and Newborn Care in Health Facilities (2016)*, WHO specifies that facilities providing surgical and obstetric services should have properly designed and equipped theatres, clear separation of clean and contaminated zones, adequate lighting, controlled airflow, and functional sterilization and waste handling systems. The standards further require continuous availability of safe water, electricity, and sanitation services to support surgical safety and quality maternal care. These requirements are directly relevant to the Proposed Project.

WHO also provides specific guidance on newborn and neonatal care through the *WHO Recommendations on Newborn Health (2017)* and the *WHO Kangaroo Mother Care Implementation Guide (2018)*. These documents state that newborn units, Neonatal Intensive Care Units (NICUs), and Kangaroo Mother Care (KMC) units should be designed to maintain thermal control, infection prevention, adequate spacing between cots, and close proximity to maternity and surgical services to allow timely emergency response. WHO explicitly recognizes KMC as an evidence-based intervention for improving survival of preterm and low-birth-weight infants and recommends its integration into hospital infrastructure as part of routine neonatal care.

With respect to environmental health and occupational safety, WHO's *Environmental, Health, and Safety Guidelines for Health Care Facilities* and the *WHO Health Care Waste Management Guidelines (2014)* require health facilities to implement strict segregation of healthcare waste at source, safe handling of sharps, secure temporary storage, and treatment and disposal through approved technologies. WHO further states that hospitals must provide functional laundry and kitchen facilities designed to prevent cross-contamination and support infection control. These guidelines also stress that when construction or expansion is undertaken within an operational hospital, measures must be implemented to control dust, noise, vibration, and access to protect patients, healthcare workers, and visitors.

Overall, WHO guidance consistently emphasizes that safe, functional, and well-designed healthcare infrastructure is a prerequisite for quality healthcare delivery, infection prevention, patient safety, and staff protection. The proposed project therefore reflects international best practice in healthcare facility development.

3.4.2 Universal Health Coverage (UHC) Policy, 2020–2030

The UHC Policy aims to ensure that all Kenyans have access to quality health services without financial hardship. It prioritizes strengthening health infrastructure, improving service availability at county hospitals, and reducing referrals to higher-level facilities. The Proposed Project supports UHC objectives improving affordability and accessibility of healthcare services within Londiani area in Kericho County and neighboring counties including the entire East Africa Region.

3.5 African Development Bank Policy Provisions

Applicable African Development Bank Operational (AfDB) Safeguard Policies (OS) are listed in the table below.

OS 1: Environmental and Social Assessment.	Project components will trigger OS 1. Detailed Project Assessment identified that according to OS 1 screening provisions, South Rift Level VI Teaching and Referral Hospital Project is a Category 1, i.e. the Project is likely to have detrimental site-specific environmental and/or social impacts that are more adverse and but can be reversible, and minimized by applying appropriate management and mitigation measures. Mitigation measures for impacts that will be presented in the ESIA
OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation.	The policy aims to avoid involuntary resettlement where feasible, or minimize resettlement impacts where involuntary resettlement is deemed unavoidable after all alternative Project designs have been explored.
OS 3: Biodiversity, Renewable Resources and Ecosystem Services.	The safeguard aims to conserve biological diversity and ecosystem integrity by avoiding or, if avoidance is not possible, reducing and mitigating any adverse environment and social risks.
OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency.	The Project shall utilize raw materials both during construction and operation phase that could result to pollution of biophysical environment if not handled appropriately. Appropriate mitigation measures for likely waste to be generated by the Project will be detailed in the ESIA.
OS 5: Labor Conditions, Health and Safety.	The Project shall involve workers both during construction and operation phases of the project. This policy read together with OSHA 2007 shall form integral instruments to be used in ensuring that health, safety and working conditions of both works and community is safeguards. The Labour Relations Act 2011 will be applied by labour force on site in addressing disputes related to working conditions.
OS6: Stakeholder Engagement and Information disclosure.	This will be achieved by the proponent and the contractor through continuous and meaningful consultations across all phases of the project, rather than at a single stage. It will also involve providing project information in clear, accessible formats and local languages, as well as maintaining ongoing engagement even after implementation.

POLICY & LEGISLATION SUMMARY	RELEVANCE TO THE PROJECT
The Constitution of Kenya 2010	In line with the Constitution of Kenya, all activities and projects carried out in the country must align with the national environmental vision and uphold every individual's right to a clean and healthy environment. Since the proposed project involves key aspects of the physical and natural environment, it requires a well-defined Environmental and Social Management Plan to address and mitigate any potential adverse impacts.
National Environmental Policy	The National Environmental Policy ensures projects integrate environmental protection and sustainable resource use. It is relevant because the hospital project must prevent pollution, manage waste, and use water and energy efficiently. Following the policy ensures compliance with national environmental standards and supports sustainability.
The Energy Act, 2019	The operator is required to comply with the strict provisions of the Act governing electrical installations at the site to help prevent electricity-related incidents and accidents.
The Health Act, 2017	It provides the legal framework for the delivery and regulation of healthcare services in Kenya and supports the proposed project.
Occupational Safety and Health Act (OSHA), 2007	The Act places responsibilities on both occupiers and employees, including the obligation to report any hazardous situations, which must be observed throughout the project's implementation and operation phases. All project stakeholders are also required to comply with provisions prohibiting the creation of hazards, ensuring the safety of persons beyond employees, and maintaining standards for cleanliness, overcrowding, ventilation, lighting, machinery and chemical safety, and general welfare.
Environmental Impact Assessment and Audit Regulations 2003 (Revised 2019).	The Regulations provide guidelines for conducting an Environmental Impact Assessment (EIA) and include provisions for the preparation of a Project Report. The requirement for public participation, as outlined in the Regulations, has been fully observed throughout the EIA process. The Second Schedule of the Regulations lists the issues to be considered in an EIA, while the Third Schedule

	provides general guidelines for carrying out an EIA study.
Noise and Excessive Vibration Pollution (Control) Regulations, 2009.	Contractors are required to operate within the maximum permissible noise levels specified in the First Schedule of the Regulations. The Regulations also provide guidelines on the use of machinery, nighttime construction noise, and excessive vibrations at construction, demolition, mining, or quarrying sites, all of which must be strictly followed. Additionally, contractors must comply with the licensing requirements for the various site activities.
Environmental Management and Co-ordination (Waste Management) Regulations, 2024	The Act will ensure that the project handles waste in a way that protects public health and prevents environmental pollution, especially since the site is near a river. The regulations require the project to segregate waste at the source, store it safely, and ensure proper transportation and disposal at licensed facilities. They also require the project to manage hazardous waste separately and prevent any illegal dumping or discharge that could contaminate the nearby river.
UHC	It establishes the framework for achieving universal access to essential health services without financial hardship and emphasizes equity, quality, and efficiency in healthcare delivery. The Act guides strengthening of health systems, infrastructure, and service availability to meet population health needs
Air Quality Act	The Air Quality Act sets standards and guidelines for controlling air pollution and maintaining clean air for public health and the environment. It is relevant to the project because construction activities such as excavation, burning of waste, and vehicle movements can generate dust and emissions that may affect air quality, especially for nearby residents. The project must implement measures to control dust, prevent burning of waste, and minimize emissions from machinery to comply with the Act and protect the surrounding community.
Water Quality Regulations	It sets standards for the protection of surface and groundwater resources and regulates the quality of wastewater and effluent discharges to prevent water pollution. The regulations require treatment, monitoring, and controlled discharge of wastewater to safeguard public health and environmental quality.
WHO	It provides international guidelines on the design, operation, and management of healthcare facilities to ensure patient safety, infection prevention, and quality

	care, and supports the proposed Project in line with global best practices for maternal, neonatal, and surgical services.
Public Health Act	It provides the legal framework for the protection of public health by regulating sanitation, waste management, disease prevention, and environmental hygiene. It is relevant to the project as it guides the safe management of healthcare facilities, including control of infections, proper handling of waste and wastewater, and maintenance of hygienic conditions during construction, operation, and decommissioning phases.
The National Land Policy (Sessional Paper No. 3 of 2009)	The policy regulates rights over land and provides for sustainable growth, investment and the reduction of poverty in line with the Government's overall development objectives. Specifically, "the policy offers a framework of policies and laws designed to ensure the maintenance of a system of land administration and management. The overall objective of the National Land Policy is to secure land rights and provide for sustainable growth, investment, and the reduction of poverty in line with the government's overall development objectives.
Economic Recovery for Wealth and Employment Creation Strategy 2006	The overall goal of the strategy is to ensure clear improvement in the social and economic wellbeing of all Kenyans; thereby giving Kenyans a better deal in their lives, and in their struggle to build a modern and prosperous nation. The key areas covered in the strategy are: • Expanding and improving infrastructure; • Reforms in trade and industry; • Reforms in forestry; • Affordable shelter and housing; • Developing arid and semi-arid lands, and • Safeguarding environment and natural resources.
Kenya Health Policy (2014-2030)	In line with the objectives of the Kenya Health Policy, the project aims to improve the quality and accessibility of healthcare services, with a specific emphasis on maternal and child health. By addressing priority areas such as reducing maternal and child mortality rates and enhancing healthcare infrastructure, the project aligns closely with the policy's strategic directives.
Kenya Kwanza Manifesto	The project is in harmony with the Kenya Kwanza Manifesto's commitment to accelerating socio-economic

	development, particularly in improving the health and well-being of mothers and children. By aligning with the manifesto's ambitious targets to reduce maternal and child mortality rates and ensure access to quality healthcare services, the project reinforces the government's commitment to holistic development.
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3.6 Permits and Licences

The permits and licenses listed below will be secured by CRVWWDA before Project civil works are commissioned.

- Environmental Impact Assessment (EIA) License issued by National Environment Management Authority (NEMA) in accordance with the provisions of the Environmental Management and Coordination Act (EMCA) 1999.
- Workplace Registration Certificate from the Directorate of Occupational Safety and Health Services under the Directorate of Occupational Safety and Health Services (DOSHS). Prior to registration, the contractor shall undertake health and safety audits, risk assessments, fire safety training, and first aid training for workers.
- Development Approval and Building Plan Approvals from the Kericho County Government through the Department of Physical Planning and relevant departments for all proposed structures.
- Public Health Approval for sanitation and waste management facilities from the Public Health Department of Kericho County Government.
- Effluent Discharge License from National Environment Management Authority (NEMA) for the management and discharge of wastewater from the hospital.
- Waste Management License (including handling of medical waste) from National Environment Management Authority (NEMA).
- Radiation Protection License from the Radiation Protection Board.
- Fire Safety Compliance Certificate from the County Fire Department under Kericho County Government.
- Registration and Licensing of the Health Facility by the Kenya Medical Practitioners and Dentists Council (KMPDC) or relevant regulatory body.
- Any other additional permits that will be required.

4.0 ANALYSIS OF ALTERNATIVES

4.1 Development on the proposed site (Proposed).

This option entails the development of a new Level VI Teaching and Referral Hospital on a greenfield site in Kericho County, with most of the supporting infrastructure designed to operate independently.

Key consideration for this option.

- On-site liquid and solid waste treatment facilities (including medical waste management systems).
- Independent water supply systems (e.g., boreholes, storage, and treatment)
- Dedicated sewerage and drainage systems
- Power supply systems, including backup generators and possible renewable energy options.

Advantages

- Full compliance with Level VI hospital standards through purpose-built design.
- Adequate land for all required components, including specialized units, teaching, and research facilities
- No reliance on existing, potentially inadequate infrastructure systems
- Ability to integrate modern and environmentally sound waste management systems (both solid and liquid)
- Enhanced long-term sustainability, efficiency, and scalability

Disadvantages

- High capital costs associated with construction and infrastructure development
- Requires land acquisition and regulatory approvals
- Longer implementation timeline

4.2 Construction within an Existing Site (Upgrading Existing Facilities)

This alternative would involve upgrading and expanding an existing hospital within Kericho County to accommodate Level VI services.

Advantages

- Lower initial capital investment due to use of existing land and infrastructure
- Faster implementation timelines
- Reduced need for land acquisition

Disadvantages

- Inadequate space to support a full Level VI hospital with specialized departments
- Existing infrastructure (water, waste management, power) is not designed to support the scale and complexity of a Level VI facility
- Disruption of ongoing healthcare services during construction
- Limited ability to integrate modern hospital design, including advanced waste treatment systems and utilities

4.3 No-Action Alternative

Under this alternative, no new hospital would be constructed.

Advantages

- No capital expenditure
- No environmental disturbance from construction activities

Disadvantages

- Continued lack of access to specialized healthcare services in the South Rift region
- Persistent congestion at Moi Teaching and Referral Hospital
- Increased mortality due to delays in referral and treatment
- Inability to meet growing healthcare demand and population needs
- Missed opportunity for establishing a regional teaching and research hub.

4.4 Preferred Alternative

The preferred option is the construction of a new Level VI Teaching and Referral Hospital in Kericho County.

Justification

i. **Designed for Purpose**

Unlike upgrading existing facilities, this project allows for a fully integrated design that meets Level VI standards, including specialized care, training, and research.

ii. **Self-Sufficient Infrastructure**

The hospital will not depend on existing systems. It will include:

- a. On-site solid and liquid waste treatment facilities
- b. Independent water supply and storage systems
- c. Dedicated sewerage and drainage systems
- d. Reliable power supply with backup systems

This ensures efficiency, environmental compliance, and uninterrupted service delivery.

iii. **Improved Healthcare Outcomes**

The facility will significantly reduce referral delays and mortality rates, especially for trauma and emergency cases along the Londiani corridor.

iv. **Regional Impact**

It will serve the entire South Rift and reduce pressure on Moi Teaching and Referral Hospital.

v. **Sustainability and Future Expansion**

A greenfield project allows for future expansion and integration of new technologies without spatial or structural constraints.

5.0 PROPOSED WORKS UNDER THE PROJECT.

The proposed project involves the construction and operationalization of a fully-fledged Level VI Teaching and Referral Hospital in Kericho County. The key proposed works will include the following:

- i. **Site Preparation Works**
This will involve land clearing, grading, excavation, and leveling of the project site to prepare it for construction activities.
- ii. **Construction of Hospital Buildings**
Development of major hospital infrastructure including inpatient and outpatient blocks, emergency and trauma center, specialized units and administrative offices.
- iii. **Development of Specialized Medical Facilities**
Establishment of fully equipped departments to handle complex and specialized medical cases, including theatres, laboratories, radiology units, and intensive care units.
- iv. **Construction of Teaching and Research Facilities**
Development of lecture halls, training centers, and research units to support medical education and innovation, in line with the hospital's role as a teaching and referral institution.
- v. **Installation of Medical Equipment and ICT Systems**
Supply and installation of modern medical equipment, hospital management systems, and ICT infrastructure to support efficient healthcare delivery.
- vi. **Provision of Support Infrastructure**
This will include construction of staff housing (if applicable), parking areas, internal access roads, water supply systems, sewerage and drainage systems, waste management facilities (including medical waste), and power supply (including backup systems).
- vii. **Construction of Utility and Ancillary Facilities**
Includes installation of water storage facilities, standby generators, oxygen plants, laundry services, kitchens, and mortuary facilities.
- viii. **Landscaping and External Works**
Beautification of the site, tree planting, walkways, fencing, and security installations.
- ix. **Operationalization of the Facility**
Recruitment and deployment of qualified healthcare personnel, equipping the facility, and commissioning it for full operation as a Level VI hospital.

6. POTENTIAL ENVIRONMENTAL IMPACTS

6.1 PROJECT POSITIVE IMPACTS

i. Improved Access to Specialized Healthcare Services

The construction of the Level VI Teaching and Referral Hospital will significantly improve access to advanced and specialized healthcare services within Kericho County and the wider South Rift region. The facility will reduce the need for patients to travel long distances to referral hospitals such as Moi Teaching and Referral Hospital, thereby enhancing timely access to critical care and reducing delays in treatment.

ii. Improved Health Outcomes and Reduced Mortality

The availability of specialized medical services, including emergency care, intensive care, and advanced diagnostics, will contribute to improved health outcomes. The hospital will play a critical role in reducing mortality rates associated with trauma, maternal complications, and non-communicable diseases, particularly along high-risk areas such as the Londiani transport corridor.

iii. Employment and Economic Growth

The project will generate significant employment opportunities during both construction and operational phases. Skilled and unskilled labour will be engaged, while indirect employment will arise through supply chains, transport services, and local businesses. Once operational, the hospital will create long-term jobs for healthcare professionals, administrative staff, and support personnel, contributing to sustained economic growth in Kericho County.

iv. Strengthening of Healthcare Infrastructure and Capacity

The establishment of a Level VI facility will strengthen the healthcare system by providing advanced infrastructure, modern medical equipment, and specialized departments. This will enhance the region's capacity to manage complex medical cases, reduce congestion in lower-level facilities, and improve overall service delivery.

v. Enhancement of Medical Training and Research

As a teaching and referral hospital, the facility will support medical education, training, and research. It will provide a platform for training healthcare professionals and conducting research on emerging health issues, thereby improving the quality of healthcare services and promoting innovation in the health sector.

vi. Improved Emergency and Trauma Response

The hospital will enhance emergency preparedness and response capacity within the region. With fully equipped trauma and emergency units, the facility will provide timely intervention for accident victims and critical cases, significantly reducing fatalities and long-term disabilities.

vii. Improved Sanitation and Waste Management Systems

The project will incorporate modern, on-site waste management systems for both solid and liquid waste, including medical waste treatment. This will improve sanitation standards, minimize environmental pollution, and promote safer healthcare practices within the facility.

viii. Improved Water Supply and Utility Reliability

The hospital will be supported by independent and reliable utility systems, including water supply, sewerage, and power infrastructure. This will ensure uninterrupted healthcare service delivery and enhance operational efficiency.

ix. Promotion of Gender Equity and Social Inclusion

The project will improve access to specialized healthcare services for vulnerable groups, including women, children, the elderly, and persons with disabilities. Enhanced maternal and reproductive health services will particularly benefit women, contributing to gender equity in healthcare access.

x. Improved Security and Hospital Environment

The development will include controlled access, fencing, and security systems to safeguard patients, staff, and hospital assets. Landscaping and organized infrastructure will create a conducive, safe, and welcoming environment for healthcare delivery.

xi. Regional Development and Reduced Healthcare Inequality

The project will promote equitable distribution of healthcare services by decentralizing specialized care from major urban centers. This will reduce regional disparities and support balanced socio-economic development across the South Rift and neighboring regions.

6.2 CONSTRUCTION PHASE IMPACTS (NEGATIVE IMPACTS)

i. Noise

Noise and vibration impacts during the construction phase are expected to arise from the operation of construction machinery, equipment, and vehicles associated with demolition, excavation, masonry works, concrete mixing, drilling, cutting, and transportation of materials. Sources of noise will include mixers, generators, power tools, trucks, and other construction activities. These operations will generate intermittent and continuous noise levels that may exceed normal background levels within the hospital environment.

Prolonged exposure to elevated noise levels may also result in headaches, fatigue, stress, and temporary hearing discomfort among construction workers. Vibration generated from excavation equipment and movement of heavy vehicles may cause localized disturbance and minor structural stress to nearby hospital buildings if not properly managed, although such impacts are expected to be short-term and reversible.

Mitigation Measures

To minimize noise and vibration impacts during construction, the following measures will be implemented:

- i. Restricting noisy construction activities to daytime hours and coordinating work schedules with hospital management in accordance with the Noise and Excessive Vibration Pollution (Control) Regulations
- ii. Use of well-maintained, low-noise machinery and equipment fitted with silencers and mufflers
- iii. Switching off equipment when not in use to minimize unnecessary noise
- iv. Erecting temporary noise barriers or hoardings around high-noise activity areas, especially near patient wards
- v. Providing appropriate Personal Protective Equipment (PPE), such as ear plugs or ear muffs, to construction workers
- vi. Sensitizing workers on noise control measures, hospital-specific sensitivity, and good site practices
- vii. Regular monitoring of noise levels to ensure compliance with permissible limits and to promptly address any complaints or disturbances

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	3	3	33	Medium
With Mitigation Measures	2	2	1	2	2	14	Low

ii. Conflict

During the construction phase of the proposed hospital development, social conflict may arise between the contractor and the surrounding community, particularly neighbouring residents. One of the main sources of conflict is likely to be expectations for employment opportunities. Local community members may anticipate being given priority for casual jobs, security work, material supply, or other construction-related opportunities. Where such expectations are not clearly managed, perceived exclusion or unequal access to employment may lead to dissatisfaction and tension.

Additional conflict may arise due to construction-related disturbances such as noise, dust, vibration, restricted access, and temporary changes to movement patterns around the site. Neighbours may feel inconvenienced by construction activities, especially if works extend into early mornings or evenings, or if access to their homes or businesses is affected. In densely populated areas, these disturbances may heighten sensitivity and increase the likelihood of complaints.

If not properly addressed, such conflicts may escalate into complaints to local authorities, hostility toward construction workers, obstruction of works, or community resistance, potentially causing delays to the project and straining relations between the hospital and the host community.

Mitigation Measures

- i. Clearly communicate the scope and limitations of available employment opportunities to

- manage expectations.
- ii. Where feasible, prioritize fair and transparent recruitment of local casual labour for non-specialized works.
- iii. Establish a grievance redress mechanism for neighbours to raise concerns related to noise, dust, access, or employment.
- iv. Schedule noisy or disruptive activities during approved daytime hours to minimize disturbance.
- v. Implement dust and noise control measures to reduce nuisance to surrounding properties.
- vi. Maintain open communication between the contractor, hospital management, and community representatives throughout the construction period

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	2	2	2	2	16	Medium
With Mitigation Measures	1	1	1	1	1	4	Low

iii. Air Quality

Air quality impacts during the construction phase of the proposed hospital expansion are anticipated to arise mainly from dust generation and exhaust emissions associated with construction activities. Unlike noise, which diminishes relatively quickly with distance, air pollutants can persist in the atmosphere and be transported by wind, potentially affecting a wider area beyond the immediate project site. This is particularly significant because the hospital will remain operational during construction, with patients, healthcare workers, and visitors present within the compound.

Dust emissions are expected to originate from demolition of existing structures, site clearance, excavation, earthworks, material handling, and movement of construction vehicles within and around the hospital compound. Activities such as dry cutting, drilling, surface preparation, and mixing of construction materials may generate fine particulate matter, including cement dust and silica particles, which can become airborne. Loading and unloading of materials such as sand, ballast, and cement may further contribute to dust emissions, especially during dry and windy conditions.

Exhaust emissions will be generated from diesel-powered construction machinery, vehicles, generators, and equipment operating on site. These emissions may include Suspended Particulate Matter (SPM), Nitrogen Oxides (NO_x), Sulphur Dioxide (SO₂), Carbon Monoxide (CO), and trace hydrocarbons, which may temporarily degrade ambient air quality within the hospital environment. Increased fuel consumption during peak construction activities may lead to elevated concentrations of these pollutants within the project area.

Meteorological conditions such as wind speed, wind direction, and atmospheric stability will influence the dispersion of air pollutants. Calm conditions may result in localized accumulation of dust and exhaust fumes, while strong winds may disperse pollutants over a wider area,

increasing the zone of influence. The presence of buildings within the hospital compound may also affect airflow patterns and pollutant dispersion.

Vulnerable receptors within the project area include patients, particularly pregnant women, newborns, and critically ill patients, healthcare workers, visitors, and construction workers. These groups are especially sensitive to air pollution, as prolonged exposure to dust and exhaust emissions may cause respiratory irritation, allergic reactions, or aggravate existing respiratory conditions. Dust deposition may also affect nearby vegetation and cause temporary aesthetic degradation of hospital buildings and surfaces. However, given the localized nature and limited duration of construction activities, these impacts are expected to be short-term and reversible with proper mitigation.

Mitigation Measures

To minimize adverse air quality impacts during the construction phase, the following mitigation measures will be implemented:

- i. Provision and mandatory use of appropriate Personal Protective Equipment (PPE) for all workers, including dust masks or respirators, safety boots, helmets, gloves, and protective clothing
- ii. Scheduling material delivery, pick-up, and drop-off times in consultation with hospital management to minimize congestion and dust generation
- iii. Establishment of buffer zones and installation of physical barriers or hoardings around active construction areas to protect patients, staff, and visitors
- iv. Scheduling dust-generating activities with consideration of weather conditions, particularly avoiding works during strong winds
- v. Use of wet methods for cutting, drilling, demolition, and concrete works to suppress dust emissions
- vi. Preference for well-maintained, low-emission, and where feasible, electrically powered construction equipment
- vii. Use of low-sulphur diesel fuel for construction machinery
- viii. Regular servicing and maintenance of all construction vehicles and equipment to ensure efficient combustion and reduced exhaust emissions

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	2	2	2	3	24	Medium
With Mitigation Measures	1	1	1	2	3	15	Low

iv. Solid waste

The construction phase of the proposed hospital expansion will result in the generation of solid waste from various construction activities. Solid waste is expected to include excavated soil, demolition debris, surplus construction materials, cement bags, scrap metal, timber off-cuts, broken blocks, packaging materials, and general domestic waste generated by construction

workers. Given that the hospital will remain operational during construction, poor waste management may interfere with hospital activities and compromise hygiene standards.

If not properly managed, construction waste may lead to environmental degradation, including land contamination, blockage of drainage systems, attraction of pests, and visual pollution within the hospital compound. Accumulated waste materials may obstruct walkways and access routes, thereby increasing the risk of accidents and injuries. In addition, unmanaged waste may create dust, unpleasant odours, and potential health risks to visitors, and construction personnel

Potential Mitigation Measures

- i. Segregation of construction waste at source into reusable, recyclable, and non-recyclable categories
- ii. Reuse or recycling of suitable materials such as scrap metal, timber, and excavated soil where feasible
- iii. Provision of adequate waste skips and bins at designated construction areas
- iv. Prohibition of open dumping or burning of construction waste within the hospital compound
- v. Regular site housekeeping to prevent accumulation of waste and obstruction of movement
- vi. Training of construction workers on proper waste handling, segregation, and site cleanliness

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	5	2	4	5	8	25	Medium
With Mitigation Measures	1	1	1	1		4	Low

v. Liquid Waste

During the construction phase, liquid waste impacts are expected to arise from increased use of sanitation facilities by contractors, technicians, and support staff working on site for extended hours. Overuse or inadequate maintenance of sanitary facilities may result in blockages, overflow, and reduced hygiene standards, creating health risks such as diarrhoeal diseases, skin infections, and unpleasant odours.

If portable toilets are provided but not properly managed, they may become sources of leakage, odour, and wastewater spillages. Liquid waste from poorly maintained facilities may infiltrate the soil or enter surface drainage channels, posing contamination risks. In addition, construction activities such as equipment washing, concrete works, and site cleaning may generate wastewater containing cement residues and suspended solids, which can degrade soil quality and

block drainage systems if discharged indiscriminately. Machinery servicing and refuelling may also result in oil and fuel spillages that contaminate soil and create slippery surfaces, increasing accident risks.

Potential Mitigation Measures

- i. Provision of adequate, dedicated sanitation facilities for construction workers.
- ii. Regular cleaning, servicing, and emptying of portable toilets to prevent overflow, odour, and leakage
- iii. Monitoring of existing drainage and sanitation systems to ensure they are not overloaded during construction
- iv. Establishment of lined concrete washout pits for disposal of cement-contaminated wastewater.
- v. Prohibition of discharge of wastewater into open ground, storm drains, or natural watercourses.
- vi. Conducting machinery servicing and refuelling in designated areas with impermeable surfaces
- vii. Proper storage of oils and lubricants in sealed containers and bunded areas
- viii. Immediate containment and cleanup of spills using spill kits.
- ix. Training construction workers on proper sanitation use, spill prevention, and hygiene practices.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	2	3	30	High
With Mitigation Measures	1	2	1	1	2	10	Low

vi. Traffic Congestion During Construction

Delivery vehicles may need to park in loading zones, bus stops, taxi stands, or other spaces designated for other uses, displacing these legitimate functions and creating conflicts with other road users who depend on these spaces.

Traffic pattern disruption can occur when construction activities require temporary changes to normal traffic flow. Lane closures to allow crane operation or material staging force traffic to merge and reduce capacity.

Mitigation Measures

- i. Traffic management plan to be developed before construction begins.

- ii. Delivery scheduling- Restricting deliveries to off-peak hours, mid-morning and early afternoon. rather than during peak commute times.
- iii. Consolidated deliveries, where multiple items are combined onto single trucks rather than arriving on separate vehicles.
- iv. Worker transportation management to minimize numerous vehicle trips.
- v. Parking arrangements that designate specific parking areas for construction vehicles,
- vi. Trained traffic marshals positioned to guide traffic around temporary obstacles.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	3	2	1	3	24	Medium
With Mitigation Measures	1	2	1	1	2	10	Low

vii. **Public Safety**

Construction activities within the project site present public safety risks if work areas are not adequately secured. Unauthorized access to construction zones may expose visitors and support service providers to hazards such as open excavations, moving machinery, falling materials, dust, and noise. These individuals are generally not trained to recognize or avoid construction-related risks and do not have appropriate personal protective equipment.

Mitigation measures:

- i. Clearly demarcate all construction areas using solid hoardings, fencing, and lockable access points to prevent unauthorized entry.
- ii. Restrict construction access routes and separate them from patient, staff, and visitor pathways within the hospital.
- iii. Install visible warning signs and directional signage in both English and local language(s) around all construction zones.
- iv. Schedule high-risk construction activities during off-peak hospital hours to minimize interaction with patients and visitors.
- v. Assign trained security personnel or site marshals to control access and guide movement around construction areas.
- vi. Ensure all open excavations are covered or securely barricaded when work is not ongoing.
- vii. Enforce strict housekeeping practices to prevent loose materials, debris, or tools from posing trip or injury hazards.
- viii. Conduct regular safety inspections to ensure barriers, signage, and access controls

remain effective throughout the construction period.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	3	2	2	2	18	Low
With Mitigation Measures	1	2	1	1	1	5	Low

viii. **Occupational Health & Safety**

Construction activities associated with the construction of the hospital pose various occupational health and safety risks to construction workers, hospital staff, patients, visitors, and the general public. Potential hazards include falls from heights during structural works, injuries from sharp tools and construction equipment, electrocution during electrical installations, exposure to dust, noise, and vibration, manual handling injuries, and accidents involving moving vehicles and heavy machinery. Given that part of the hospital will remain operational during construction, there is an increased risk of interaction between construction activities and healthcare operations, which may compromise safety if not properly managed.

Construction workers may also face health risks arising from prolonged exposure to dust, noise, hazardous substances, and physical strain, particularly in the absence of adequate training, supervision, and use of appropriate personal protective equipment. These risks underscore the need for strict adherence to occupational health and safety requirements, effective site management, and coordination between contractors and hospital management to ensure the safety of all users of the facility throughout the construction phase.

Mitigation measures:

- i. Establish and implement safe working and operational procedures,
- ii. Use of tool lanyards to secure tools to workers, toe boards along work platforms to prevent materials from rolling off edges,
- iii. Erection of warning signs, barricades, and controlled access points around construction areas
- iv. Use of debris netting to catch falling objects.
- v. Designated exclusion zones beneath work areas combine to minimize falling object risks.
- vi. Provide fire extinguishers
- vii. Train fire marshals, First aiders.
- viii. Conduct OSH sensitization and toolbox talks

- ix. Provide first aid kits
- x. Emergency response planning and preparedness for potential incidents
- xi. Ensure the use of appropriate PPE by all employees on site.
- xii. Adhere to the occupational health and safety rules and regulations stipulated in the Occupational Safety and Health Act 2007

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	4	4	4	2	3	42	High
With Mitigation Measures	2	2	2	1	2	14	Low

6.3 OPERATIONS PHASE NEGATIVE IMPACTS

i. Increased Population Density and Crowding

The operation of the proposed facility is expected to attract an increased number of people to the area, including patients, staff, visitors, suppliers, and service providers. This influx will contribute to higher population density, particularly during peak service hours, clinic days, visiting hours, and emergency situations. Increased human activity within and around the facility may lead to crowding in waiting areas, entrances, corridors, parking zones, and adjacent public spaces.

If not adequately managed, increased population density and crowding may result in congestion, reduced service efficiency, heightened public health risks, and strain on existing infrastructure, including sanitation facilities, water supply, waste management systems, and access routes. In healthcare settings, overcrowding also increases the risk of disease transmission, compromises patient comfort and privacy, and may affect emergency response efficiency.

Mitigation measures:

- i. Design adequate waiting areas, corridors, and circulation spaces to accommodate projected patient and visitor volumes.
- ii. Implement appointment and patient flow management systems to reduce congestion during peak periods.
- iii. Provide clear signage and wayfinding systems to improve movement and minimize unnecessary crowding.

- iv. Ensure sufficient sanitation facilities, handwashing stations, and waste bins to support increased population levels.
- v. Deploy trained staff to manage queues, guide visitors, and control access during peak hours.
- vi. Schedule visiting hours and service delivery to spread demand and avoid excessive crowding.
- vii. Implement infection prevention and control measures, including routine cleaning and crowd density management in public areas.
- viii. Provide adequate security and emergency access routes to ensure safe movement within and around the facility.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	2	2	2	3	24	Low
With Mitigation Measures	1	1	1	1	2	8	Low

ii. **Energy Demand Increase.**

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, 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.

Mitigation measures include: -

- i. Install energy-efficient lighting systems such as LED lights throughout the facility.
- ii. Use energy-efficient medical, laboratory, and office equipment with high energy performance ratings.
- iii. Design buildings to maximize natural lighting and ventilation to reduce reliance on artificial lighting and mechanical cooling.
- iv. Implement a preventive maintenance program for electrical systems and equipment to ensure optimal energy performance.
- v. Install power meters and sub-meters to monitor energy consumption in high-demand areas such as theatres, laboratories, and laundry facilities.

- vi. Utilize automatic controls, timers, and motion sensors to reduce unnecessary energy use in low-occupancy areas.
- vii. Provide backup power systems that comply with safety and environmental standards and ensure generators are well-maintained.
- viii. Explore the use of renewable energy options, such as solar power, to supplement grid electricity and reduce overall energy demand.
- ix. The hospital will be required to install and operate its own power distribution transformers and internal power grid to ensure reliable electricity supply. This is in line with Kenya Power requirements, which stipulate that large-scale facilities must provide dedicated transformer installations to manage their power demand efficiently and reduce strain on the national grid.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	2	2	2	2	2	16	High
With Mitigation Measures	1	1	1	1	1	4	Low

iii. Occupational Health & Safety

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.

Mitigation:

- i. Development and implementation of comprehensive occupational health and safety policies and procedures in line with national legislation and international health care facility guidelines
- ii. Establishment of infection prevention and control programmes, including standard and universal precautions for handling blood and other potentially infectious materials
- iii. Provision and mandatory use of appropriate personal protective equipment such as gloves, masks, gowns, eye protection, and safety footwear
- iv. Regular training of staff on infection control, safe handling of sharps, waste management, chemical safety, fire safety, and emergency response
- v. Installation of adequate handwashing facilities and promotion of strict hand hygiene practices among staff, patients, and visitors
- vi. Proper segregation, storage, treatment, and disposal of medical and hazardous waste using color-coded systems and licensed waste handlers
- vii. Safe handling and storage of chemicals and pharmaceuticals, including availability of Material Safety Data Sheets and spill response procedures
- viii. Implementation of safe patient handling practices and use of mechanical aids to reduce manual lifting injuries
- ix. Regular inspection, servicing, and maintenance of medical equipment, electrical systems, and fire safety installations
- x. Radiation protection measures, including controlled access to imaging areas, use of shielding, and monitoring of staff exposure
- xi. Establishment of emergency preparedness and response plans, including fire drills, spill response, and first aid services
- xii. Routine occupational health surveillance and monitoring to identify and address workplace hazards and health trends among staff

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	2	2	20	High
With Mitigation Measures	2	2	1	1	1	6	Low

iv. Waste Management (Medical Waste and General 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.

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.

Mitigation Measures

Segregation at source

- ✓ Waste must be segregated at the point of generation in every ward, theatre, maternity, laboratory and pharmacy.
- ✓ 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.

Type of dustbins to use (recommended for healthcare settings)

- ✓ Use foot-operated, hands-free bins to reduce hand contact and prevent infection spread.

- ✓ Bins should be rigid, leak-proof, non-corrosive, easy to clean, and fitted with tight lids.
- ✓ Bins should be lined with colour-coded bags and placed in all waste generation points.
- ✓ Sharps must be disposed of in puncture-proof, tamper-proof sharps safety boxes (rigid plastic or approved safety containers) that can be sealed when $\frac{3}{4}$ full.
- ✓ Suggested bin system (colour-coded, aligned to common MoH practice):
- ✓ Black bins/bags: general non-hazardous waste (paper, food waste, packaging not contaminated)
- ✓ Yellow bins/bags: infectious waste (contaminated dressings, swabs, gloves, blood-stained materials)
- ✓ Yellow puncture-proof sharps boxes: sharps (needles, blades, scalpels, lancets)
- ✓ Red bins/bags (where used): highly infectious waste / isolation waste
- ✓ Brown bins/containers: pharmaceutical and chemical waste (expired medicines, disinfectants, lab chemicals)
- ✓ All bins should be labelled with the waste category and hazard symbols where applicable.

Internal collection and transportation

- ✓ Waste should be collected on a defined schedule (at least daily, and more frequently in high-waste areas).
- ✓ Dedicated waste handlers should use appropriate PPE (heavy-duty gloves, masks, boots, aprons, eye protection where needed).
- ✓ Waste should be moved using covered, leak-proof trolleys/carts that are easy to disinfect; open carrying of waste bags should be prohibited.
- ✓ Waste movement routes should avoid high patient-traffic areas where possible to minimize exposure and cross-contamination.
- ✓ Waste trolleys should be cleaned and disinfected after each round.

Temporary storage on site

- ✓ Establish a designated, secure waste storage area (waste holding bay) that is roofed, ventilated, lockable, and protected from rain, pests, and scavenging.
- ✓ The storage area should have an impermeable floor, good drainage, a wash point, and clearly marked sections for different waste types.
- ✓ Infectious waste should not be stored for long periods; storage should be minimized (ideally less than 24–48 hours depending on temperature and volumes).
- ✓ Sharps boxes must be stored securely to prevent tampering and accidental access.
- ✓ Treatment and disposal (by waste category)
- ✓ Infectious waste: treated using approved technologies such as microwave waste treatment Management.
- ✓ Sharps: sealed sharps boxes should be treated.
- ✓ Pathological waste (e.g., placenta, tissues): managed separately and treated/disposed of

through microwave waste treatment management or other approved methods; where culturally appropriate and legally permitted, placenta disposal should follow MoH and facility procedures in a controlled manner to prevent scavenging and infection risk.

- ✓ Chemical waste: stored in labelled, sealed containers with Material Safety Data Sheets available; disposed of through licensed hazardous waste handlers; never poured into drains.
- ✓ E-waste: collected and transferred to licensed e-waste recyclers; not mixed with general waste.

Management of waste onsite.

- i. The hospital shall prepare operate and maintain a Healthcare Waste Management Plan (HWMP) adequate for the scale and type of activities and identified hazards consistent with the National regulations, Health, and Safety Guidelines for Health Facilities, and WHO guidelines. Key content of Health Care Facility waste management plan should include:
 - ✓ Assignment of responsibilities including designate waste management officer
 - ✓ Waste classification (including quantities of waste generated)
 - ✓ waste minimization, reuse and recycling; waste segregation.
 - ✓ On-site handling, transport and storage practices (including containerization, color coding, labeling and signage)
 - ✓ Waste-treatment and disposal options (on-site and off-site)
 - ✓ Record keeping and documentation, training and monitoring.
 - ✓ Costs relating to waste management, including capital, operational and maintenance costs.
 - ✓ Training
 - ✓ Procedures for segregation, storage and handling of wastes requiring special arrangements, contingency plans, containing instructions on storage or evacuation of health-care waste in case of breakdown of the waste treatment unit during closure for planned maintenance and emergency procedures.
- ii. Customized training for the staff handling and managing Infectious waste will involve:
 - ✓ The use of appropriate / full PPEs (N95 respirators, apron, heavy duty gloves, eye protection.
 - ✓ Boots and long-sleeved gown
 - ✓ Hand hygiene practices
 - ✓ Waste segregation strategies and clean up procedures
 - ✓ On-site Handling, Collection, Transport and Storage
 - ✓ Exposure to radiation
- iii. Seek an operational license for the waste management facility from NEMA to ensure compliance with the EMCA (Waste Management Regulations, 2024)

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.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	7	6	8	5	10	36	High
With Mitigation Measures	2	2	1	1	1	6	Low

v). Gender-based discrimination

The operation of the proposed facility may give rise to gender-related conflicts among staff, patients, visitors, and service providers. Such conflicts may arise from unequal access to employment opportunities, perceived gender bias in job allocation, promotion, or remuneration, as well as differences in treatment of male and female patients within service delivery processes. In healthcare settings, gender dynamics may also influence communication, decision-making, workload distribution, and leadership roles.

Additionally, increased interaction between diverse groups within the facility may expose or exacerbate issues related to gender-based discrimination, harassment, or exclusion, particularly in crowded environments or during high-pressure situations. If not adequately addressed, gender conflict can negatively affect staff morale, patient satisfaction, workplace harmony, and the overall quality of healthcare services.

Mitigation Measures

- i. Implement and enforce a gender-sensitive human resource policy that promotes equal opportunity and fair treatment.
- ii. Ensure transparent recruitment, promotion, and remuneration procedures based on

- merit and qualifications.
- iii. Provide regular training on gender equality, diversity, and workplace ethics for all staff, including security personnel.
- iv. Establish a confidential reporting and grievance mechanism for gender-related complaints and harassment cases.
- v. Promote balanced gender representation in management, supervisory, and decision-making roles.
- vi. Ensure patient care procedures are respectful of gender-specific needs and cultural sensitivities.
- vii. Provide safe, well-lit, and gender-sensitive facilities, including changing rooms, sanitation facilities, and waiting areas.
- viii. Conduct periodic reviews to assess gender inclusivity and address emerging gender-related concerns.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	2	2	20	Low
With Mitigation Measures	2	2	1	1	1	6	Low

vi). Social Conflict

The operation of the proposed facility may give rise to social conflicts arising from increased interaction between hospital management, staff, patients, visitors, suppliers, and the surrounding community. Potential sources of conflict include competition for employment opportunities, perceived unequal access to services, overcrowding, noise, security concerns, and pressure on local infrastructure. Disputes may also arise from misunderstandings regarding facility operations, service prioritization, or emergency situations.

If not adequately managed, such conflicts may escalate into community dissatisfaction, staff–patient disputes, service disruptions, and reputational risks for the facility. Prolonged conflict can undermine harmonious relations with the host community, affect staff morale, and compromise the quality and efficiency of healthcare service delivery.

Mitigation

- i. Establish a clear grievance redress mechanism for patients, staff, and community members.
- ii. Engage local leaders and community representatives to promote open communication and resolve concerns promptly.
- iii. Implement transparent service delivery and patient handling procedures to minimize misunderstandings.
- iv. Prioritize fair and inclusive employment practices, giving consideration to qualified local

- residents where possible.
- v. Provide clear information to the public on facility services, operating hours, and procedures through signage and outreach.
- vi. Train staff in conflict management, communication skills, and customer care.
- vii. Ensure adequate security presence to manage disputes calmly and prevent escalation.
- viii. Conduct regular stakeholder consultations to identify emerging issues and address them early.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	2	2	20	medium
With Mitigation Measures	2	2	1	1	1	6	Low

vii). Security Exclusion and Inequality

The implementation of enhanced security measures at the facility, such as access controls, perimeter fencing, identification checks, and surveillance systems, may unintentionally lead to security exclusion and inequality. Certain groups, including persons with disabilities, the elderly, low-income patients, informal caregivers, and community members unfamiliar with formal hospital procedures, may experience barriers to access or feel intimidated by strict security protocols.

If not carefully managed, security practices may result in perceived discrimination, unequal access to healthcare services, delays in emergency response, and reduced trust between the facility and the surrounding community. Overly restrictive or poorly communicated security measures can disproportionately affect vulnerable populations, thereby undermining equity, inclusivity, and the facility's role as a public-serving institution.

Mitigation

- i. Design security procedures that are inclusive, non-discriminatory, and sensitive to vulnerable groups.
- ii. Ensure emergency access is not delayed by security screening or access control measures.
- iii. Train security personnel on human rights, customer care, and respectful engagement with all users.
- iv. Provide clear signage and guidance to help patients and visitors understand security procedures.
- v. Incorporate universal access features such as ramps, priority lanes, and assistance desks for persons with special needs.
- vi. Establish a complaints and feedback mechanism to address concerns related to security treatment.
- vii. Engage community representatives to explain security measures and address perceptions

of exclusion.

- viii. Regularly review security policies to ensure they balance safety with equitable access to services.

Impact	Mag. (1–5)	Dur. (1–5)	Ext. (1–5)	Rev. (1–3)	Likely (1–5)	Score	Significance
Before Mitigation	3	3	2	2	2	20	Low
With Mitigation Measures	2	2	1	1	1	6	Low

viii). Pressure on Water Resources

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 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.

Mitigation

- i. Install water-efficient fixtures and fittings to minimize unnecessary water use.
- ii. Implement regular inspection and maintenance of plumbing systems to detect and repair leaks promptly.
- iii. Provide adequate on-site water storage facilities to buffer against supply interruptions and peak demand.
- iv. Monitor water consumption through metering and record-keeping to promote efficient water management.
- v. Promote water conservation practices among staff through operational guidelines and training.
- vi. Explore supplementary water sources such as rainwater harvesting for non-potable uses where feasible.
- vii. Schedule high-water-demand activities, such as laundry operations, to minimize peak pressure on supply systems.
- viii. Ensure abstraction and water use comply with relevant regulatory requirements and permits.

Impact	Mag.	Dur.	Ext.	Rev.	Likely	Score	Significance
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	(1–5)	(1–5)	(1–5)	(1–3)	(1–5)		
Before Mitigation	3	3	2	2	2	20	Low
With Mitigation Measures	2	2	1	1	1	6	Low

ix). Liquid Waste Management

The proposed hospital will generate various forms of liquid waste, including domestic sewage, laboratory effluents, and wastewater from cleaning, laundry, and clinical operations. If not properly managed, this wastewater may lead to contamination of soil and water sources, unpleasant odours, and potential public health risks due to pathogens and chemical pollutants.

Mitigation Measures

- i. Construction and operation of an on-site effluent wastewater treatment plant to treat all generated wastewater before discharge
- ii. Ensuring all wastewater is properly collected through a well-designed internal drainage system
- iii. Segregation of wastewater streams (e.g., clinical, laboratory, and domestic wastewater) where feasible
- iv. Regular maintenance and servicing of the wastewater treatment plant to ensure optimal performance
- v. Routine monitoring and testing of effluent quality before discharge
- vi. Proper disposal of sludge generated from the treatment process through approved methods
- vii. Training of hospital staff on proper wastewater management practices and hygiene standards
- viii. Avoidance of direct discharge of untreated wastewater into the environment
- ix. Provision of emergency response measures in case of system failure or overflow

6.4 DECOMMISSIONING PHASE IMPACTS

i. Waste Generation and Material Disposal

During the decommissioning phase of the proposed facilities at the Hospital, environmental impacts are expected to arise mainly from the generation of solid waste and disposal of construction materials. Decommissioning activities may occur at the end of the project life or during major redevelopment and will involve partial or complete demolition of the amenities

Waste generated during this phase may include concrete rubble, masonry blocks, steel reinforcement, timber, roofing materials, glass, electrical fittings, plumbing components and general debris. If not properly managed, such waste may lead to land degradation, visual pollution, obstruction of drainage systems, and potential safety hazards within and around the hospital compound.

Improper handling and disposal of demolition waste may also result in dust emissions, accidental injuries, and contamination of soil from hazardous materials such as paints, electrical components, or laboratory residues. Transportation of waste materials may further contribute to localized environmental disturbances.

Mitigation

- Preparation and implementation of a Decommissioning and Waste Management Plan
- Segregation of waste materials into reusable, recyclable, and non-recyclable categories
- Reuse or salvage of materials such as steel, timber, doors, windows, and roofing sheets where feasible
- Safe handling and disposal of hazardous waste, including electrical components and laboratory equipment, in accordance with NEMA regulations
- Transportation and disposal of waste by licensed NEMA-approved waste handlers
- Suppression of dust through controlled demolition methods and water spraying
- Provision of appropriate PPE to all workers involved in decommissioning activities
- Site restoration and landscaping after completion of decommissioning works

ii. Air Quality Impacts

During the decommissioning phase, air quality impacts are expected to arise mainly from demolition activities, dismantling of structures, handling of debris, and transportation of waste materials. Activities such as breaking of concrete, cutting of masonry, removal of roofing materials, and loading of demolition waste may generate dust and fine particulate matter, which may temporarily degrade ambient air quality within and around the hospital compound.

Operation of demolition equipment, vehicles, and machinery may also result in exhaust emissions, including Suspended Particulate Matter (SPM), Nitrogen Oxides (NO_x), Sulphur Dioxide (SO₂), and Carbon Monoxide (CO). These emissions, although localized and short-term, may pose respiratory health risks to workers and nearby receptors if not adequately controlled.

Sensitive receptors during this phase may include medical staff, neighbouring residents, and demolition workers. Exposure to high dust levels may cause respiratory irritation, allergic reactions, and discomfort, particularly among individuals with pre-existing respiratory conditions.

Mitigation

- Regular water spraying on demolition areas and debris to suppress dust
- Provision and mandatory use of appropriate PPE such as dust masks or respirators
- Limiting vehicle idling time and ensuring efficient operation of machinery

- Use of well-maintained, low-emission equipment
- Proper covering of debris during transportation to prevent dust dispersion
- Scheduling demolition activities during calm weather conditions where feasible

iii. **Occupational Health and Safety (OHS)**

The decommissioning phase poses significant occupational health and safety risks due to the nature of demolition and dismantling activities. Potential hazards include falls from heights, collapse of unstable structures, injuries from sharp objects, exposure to dust and noise, electrocution from residual electrical connections, and accidents involving moving machinery and vehicles.

Inadequate safety controls may result in serious injuries, fatalities, or property damage. Workers may also be exposed to hazardous materials such as old paints, electrical components, or laboratory residues if present.

Mitigation

- Conducting a structural integrity assessment before demolition activities
- Isolation and safe disconnection of electrical and utility services prior to demolition
- Provision and mandatory use of appropriate PPE, including helmets, safety boots, gloves, goggles, and harnesses
- Restricting access to demolition areas through fencing and warning signage
- Training and supervision of workers on safe demolition procedures
- Availability of first aid facilities and trained emergency response personnel

iv. **Noise Pollution**

Noise and vibration impact during the decommissioning phase will arise from demolition works, use of heavy machinery, cutting tools, and movement of trucks transporting demolition waste. These activities may generate high noise levels that could cause temporary disturbance to nearby receptors. Excessive noise and vibration may lead to discomfort, stress, and reduced concentration among nearby occupants, while prolonged exposure may pose occupational health risks to workers. Vibration from heavy equipment may also cause minor structural disturbances to adjacent buildings if not properly managed. Given the temporary nature of decommissioning activities, noise impacts are expected to be short-term and reversible.

Mitigation

- Limit noisy activities to daytime hours (typically 8 AM - 5 PM weekdays)
- Provide written notice to neighbors at least 7-14 days before work begins, detailing schedule, expected noise levels, duration, and contact information for concerns.
- Use of equipment fitted with noise suppression devices such as mufflers and silencers
- Regular maintenance of demolition machinery to minimize noise and vibration
- Provision of hearing protection (ear plugs or ear muffs) to workers
- Erection of temporary noise barriers where sensitive receptors are nearby
- Advance notification to affected stakeholders prior to commencement of demolition works

v). Potential exposure of workers and the public to hazardous materials and pathogens

During the decommissioning of the facility, there is a heightened risk of exposure to hazardous materials and pathogenic organisms affecting both workers and the public. Decommissioning activities such as dismantling medical equipment, removal of fittings, demolition of structures, disconnection of utilities, and clearance of stored materials may disturb residual biological contaminants present on surfaces, within drainage systems, ventilation ducts, laboratories, theatres, and waste storage areas.

Healthcare facilities may retain pathogens, blood residues, pharmaceutical traces, chemicals, and disinfectants even after operations cease. Disturbance of these materials during demolition or dismantling can release contaminated dust, aerosols, or spills, increasing the risk of inhalation, skin contact, or accidental injury. Workers involved in demolition, waste handling, and cleaning activities are particularly vulnerable due to direct exposure to contaminated materials, sharp objects, and improperly disposed medical waste.

Members of the public may also be at risk if decommissioning activities are not adequately controlled. Unrestricted access to the site, poor containment of demolition areas, or improper transportation and disposal of contaminated waste may result in environmental contamination, public exposure to infectious agents, and health risks to nearby communities. Failure to manage these risks effectively may lead to occupational illnesses, public health concerns, regulatory non-compliance, and environmental pollution.

Mitigation Measures

- Conduct a comprehensive site assessment and decontamination of all medical, laboratory, and waste handling areas prior to demolition activities.
- Ensure all medical, pharmaceutical, chemical, and biological wastes are safely removed and disposed of by licensed waste handlers before dismantling begins.
- Provide appropriate personal protective equipment (PPE) to all decommissioning workers, including gloves, masks, coveralls, eye protection, and safety boots.
- Implement strict access control and site fencing to prevent public entry into

decommissioning areas.

- Segregate, label, and safely handle all hazardous and contaminated materials during dismantling and removal.
- Suppress dust through controlled wetting methods to minimize airborne transmission of contaminants.
- Train workers on hazard recognition, safe handling procedures, and emergency response related to hazardous materials and pathogens.
- Establish and enforce spill response and exposure management procedures, including availability of spill kits and first-aid facilities.
- Transport all contaminated materials and demolition waste using approved methods to licensed treatment or disposal facilities.
- Carry out regular health and safety inspections and monitoring throughout the decommissioning process.

vi). Psychological and Social Impacts

During the decommissioning phase of the hospital, significant psychological and social impacts may affect patients, healthcare workers, support staff, and the surrounding community. Patients who depend on the facility for regular treatment, emergency services, or specialized care may experience fear, anxiety, and uncertainty regarding access to alternative healthcare services, continuity of treatment, and increased travel distances to other facilities.

Hospital staff may face job insecurity, redeployment, or loss of income, which can result in psychological stress, reduced morale, and social strain on households. The surrounding community may also be affected by the reduced availability of healthcare services, particularly vulnerable groups such as the elderly, chronically ill patients, pregnant women, and low-income households. If poorly managed, hospital decommissioning may lead to public dissatisfaction, social tension, and loss of trust in service providers or authorities.

Mitigation Measures.

- Prepare and implement a comprehensive decommissioning plan detailing service transition and closure timelines.
- Ensure continuity of healthcare services through referrals, patient transfers, or linkage to alternative health facilities.
- Communicate clearly with patients, staff, and the community regarding changes to services and access arrangements.
- Provide adequate notice to staff and support fair redeployment or separation processes in line with labour laws.
- Offer psychosocial support and counselling services for affected patients and staff where feasible.
- Coordinate with health authorities to safeguard access to essential and emergency healthcare services.

- Establish a grievance and complaints handling mechanism to address concerns during decommissioning.

7.0 PUBLIC CONSULTATION AND PARTICIPATION

7.1 Introduction

Stakeholder engagement and consultation is a policy requirement of the Government of Kenya and a mandatory process outlined in the National Constitution, EMCA 1999, and the EMCA (Amendment) 2015. It is undertaken to uphold the core principles of sustainable development. This section outlines the stakeholder engagement and consultation process used to identify key issues and potential impacts of the proposed project, with particular focus on the views of Project Affected Persons (PAPs) living near the proposed site. The consultations were conducted using a standard questionnaire.

Objectives

The objectives of the exercise were to:

- Disseminate information to stakeholders, particularly the communities surrounding the proposed site.
- Raise public awareness on the need for an Environmental Impact Assessment (EIA) for the proposed project.
- Collect comments, suggestions, and concerns from interested and affected parties.
- Integrate the information gathered into the final EIA report.
- Inform stakeholders about the potential positive and/or negative impacts of the project during construction, installation, and operation.
- Seek consensus and obtain stakeholder consent for the project.
- Ensure compliance with EIA Regulations.
- Fulfill the public participation requirements as outlined in the National Constitution.
- Garner broader support from stakeholders for the proposed project.

7.2 Identification of stakeholders

The ESIA study incorporated extensive consultations with community members residing near the proposed project site. A stakeholder analysis was conducted to identify individuals and groups relevant to the ESIA process. Stakeholders were selected based on their involvement in activities within the project area and their residency in the surrounding community, ensuring that all affected parties had the opportunity to contribute to the assessment.

7.3 Stakeholder Engagement Approach

Preliminary consultations were undertaken with the management of the proposed project, relevant County health authorities, and officials from the Ministry of Health to identify and engage key stakeholders who are involved in, or likely to be affected by, the proposed development. The engagement process was structured to create awareness about the project, inform stakeholders about the environmental and social assessment process, and provide a platform for capturing their views, concerns, and expectations to inform project planning and decision-making.

Stakeholders were identified based on their direct or indirect roles in healthcare service delivery, public health governance, and the socio-economic wellbeing of the surrounding community. These included Ministry of Health officials, county health officials, hospital management and technical staff, local community members, neighbouring residents, local administrative leaders, and other relevant institutions.

Engagement was undertaken through a combination of key informant interviews, public consultations and focused group discussions. This allowed stakeholders to provide input on potential impacts, anticipated benefits, and suitable mitigation measures associated with the project. The process ensured inclusive participation and facilitated the integration of stakeholder concerns and recommendations into the project design and the Environmental and Social Management Plan for the proposed project.

8.0 CLIMATE CHANGE AND SUSTAINABILITY

8.1 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 Kericho County. According to projections from the Kenya Meteorological Department and regional assessments by the Intergovernmental Panel on Climate Change, the South Rift highland areas are expected to experience gradual warming, shifts in rainfall distribution, and increased intensity of storm events. Given that the proposed South Rift Level VI Teaching and Referral Hospital is intended to serve a large and growing population across the South Rift Region and beyond, 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 by approximately 1.5–2.5°C by mid-century. Although Kericho generally experiences moderate highland climatic conditions, rising temperatures may result in more frequent warm periods, affecting indoor thermal comfort within hospital buildings. Sensitive units may be particularly impacted. 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 the South Rift region are projected to become more erratic and less predictable. Changes may include delayed onset and shortened duration of rainy seasons, coupled with intense rainfall events over shorter periods. These conditions may increase the risk of surface runoff, localized flooding, and soil erosion, especially considering the terrain characteristics of parts of Kericho County. 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 the busy Londiani transport corridor.

The frequency and intensity of extreme weather events such as thunderstorms, strong winds, lightning, and occasional hailstorms are also expected to increase. 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 in a Level VI referral facility that is expected to reduce reliance on distant facilities such as Moi Teaching and Referral Hospital.

Secondary climate-related impacts are also anticipated. During prolonged dry periods, increased wind speeds may lead to elevated dust levels, particularly from surrounding agricultural activities and unpaved areas. This may compromise indoor air quality and increase maintenance requirements for filtration and ventilation systems, especially in sterile and sensitive hospital environments. Additionally, fluctuations in temperature and humidity may promote moisture accumulation, mould growth, and corrosion of building materials and equipment if not properly managed. These factors could accelerate infrastructure deterioration and increase operational costs over time.

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; use of durable, weather-resistant construction

materials; reinforced roofing and structural systems to withstand extreme weather; optimized natural ventilation and thermal insulation; installation of reliable water storage and backup systems; and implementation of preventive maintenance programs. Integrating these measures will enhance the resilience of the hospital, ensuring continuous delivery of critical healthcare services in the face of evolving climate conditions.

8.2 COMMUNITY & 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 Kericho County and the wider South Rift Region. Extreme weather conditions such as heavy rainfall, localized flooding, prolonged cold periods, and strong winds may damage critical hospital components 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 VI referral facility.

The surrounding population is expected to rely heavily on the proposed South Rift Level VI Teaching and Referral Hospital as a central hub for specialized healthcare, emergency services, and referral care. Communities along the Londiani transport corridor and neighbouring counties depend on timely access to such facilities due to the high incidence of road accidents and growing healthcare demand. Climate-induced disruptions to hospital operations may therefore lead to delayed treatment, increased travel distances to alternative facilities such as Moi Teaching and Referral Hospital, 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 the South Rift region, 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 center during disasters. As a Level VI teaching and referral hospital, the facility is expected to serve as a focal point for emergency medical response across the region. 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.

8.3 ENVIRONMENTAL VULNERABILITY

The proposed construction of the South Rift Level VI Teaching and Referral Hospital in Kericho County is situated within a highland 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, 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 and increasing temperatures may also impose environmental stress on the project site. Dry conditions are likely to 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 or due to prolonged dry spells 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. Prolonged dry spells may strain water resources required for construction activities such as concrete curing, dust suppression, and landscaping. Conversely, heavy rainfall events 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, 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, 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.

8.4 CLIMATE CHANGE ADAPTATION MEASURES

Climate change is projected to increase the frequency and intensity of extreme weather events, including heavy rainfall, prolonged dry spells, and temperature variability within Kericho County and the wider South Rift Region. In line with projections by the Intergovernmental Panel on Climate Change, the proposed South Rift Level VI 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:

- i. Design and installation of effective stormwater drainage systems capable of safely channeling runoff away from hospital buildings, internal roads, and service areas to prevent localized flooding and waterlogging during intense rainfall events.
- ii. 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.
- iii. 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.
- iv. 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.
- v. 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 variable climate conditions.
- vi. Incorporation of passive design features such as natural ventilation, adequate shading, and insulated roofing systems to regulate indoor temperatures and maintain thermal comfort in patient care areas during warmer periods.
- vii. Provision of adequate and reliable water storage systems, including strategically sized water tanks, to ensure uninterrupted water supply during dry spells or disruptions to municipal supply.
- viii. 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.
- ix. Proper scheduling and management of construction activities, where feasible, to avoid peak rainfall periods and reduce risks related to erosion, flooding, and construction delays.
- x. Establishment of routine inspection and preventive maintenance programs for drainage systems, roofing, structural components, and utility installations to sustain long-term resilience and operational efficiency.

8.5 CLIMATE CHANGE MITIGATION MEASURES

Climate change mitigation focuses on reducing greenhouse gas (GHG) emissions and minimizing the overall environmental footprint of the proposed South Rift Level VI Teaching and Referral Hospital in Kericho County. 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:

- i. 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.
- ii. Use of energy-efficient lighting systems (such as LED fixtures), electrical appliances, and medical equipment to minimize overall energy consumption within the facility.
- iii. 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.
- iv. Use of durable, low-emission, and locally appropriate construction materials with longer service life to reduce emissions associated with frequent maintenance, repair, and replacement.
- v. Incorporation of rainwater harvesting systems to supplement water supply, reduce pressure on conventional water sources, and minimize energy use associated with water pumping and treatment.
- vi. Promotion of tree planting and landscaping within the hospital compound to enhance carbon sequestration, improve microclimatic conditions, and reduce heat buildup within the facility.
- vii. Sourcing of construction materials from local suppliers where possible to reduce transportation distances, fuel consumption, and associated carbon emissions.
- viii. Implementation of efficient waste management practices, including segregation at source, recycling of suitable materials, and safe disposal of non-recyclable waste, to minimize environmental pollution and reduce emissions during both construction and operation phases.

9.0 ENVIRONMENTAL& SOCIAL IMPACTS MANAGEMENT AND MONITORING PLAN (ESMMP)

9.1 The Environment Management Plan

Impact	Proposed Mitigation	Indicators to be monitored	Responsibility	Time frame
Noise	- Drivers of the vehicles transporting materials will be encouraged to switch off vehicle engines whenever possible and Limit vehicles idling time. - Sensitize workers on noise control practices and hospital-specific noise restrictions - Install temporary acoustic barriers or hoardings around noisy construction zones - Workers to wear ear muffs if working in noisy section. - Management to ensure that noise from the residents is kept within reasonable limits. - Equipment should be selected with noise reduction in mind, and the proponent should prioritize the use of simple hand-held tools where possible.	- Initial and Periodic Noise survey - High noise complaints - Frequency of noise-related complaints from patients or staff	Proponent	During construction Phase

	- Work methodology optimization (Coordinating the noisiest activities so they occur simultaneously rather than sequentially) - Temporary sound walls erected around particularly loud equipment. - Procure equipment with vibration dampening features - Vibration monitoring during construction - The team will also ensure that only well serviced machinery is used. - All equipment will be subject to a routine maintenance programme to ensure they are in good working order, hence minimizing noise levels. - Construction activities should be restricted to the hours of 08:00 to 17:00, given the proximity to residential areas, to avoid disturbing nearby residents.			
Solid Waste	- The proponent should work hand in hand with private refuse handlers, NEMA and the County	- Solid Waste pile - Waste quantities	Proponent/ Contractor	During construction Phase

	government to facilitate sound waste handling and disposal from site. - All solid wastes should be taken for disposal to the approved dumpsites and by licensed waste handlers. - Reuse and recycling program where some materials can be re-used elsewhere or recycled - The wastes should be properly segregated and separated to encourage recycling of some useful waste materials. - Proper dustbins should be provided, and the occupier should make arrangements on proper disposal of wastes during operation. - Material Safety Data sheet should be obtained for any acquired chemical which will guide its handling. - Segregate waste by separating hazardous waste from non-hazardous waste for appropriate disposal. - Train workers on waste management and segregation.			
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	- For disposal of chemical and any hazardous substances, it should follow guidelines of the EMCA Waste Management Regulations, 2024.			
Air Quality	- Appropriate Personal Protective Equipment (PPE) must be provided to all site workers, particularly those involved in activities such as site preparation, painting and welding. This includes respirators, dust coats, aprons, safety boots, helmets, and protective gloves among others. - Scheduling pick up and drop off times. - The proponent will be responsible for ensuring that all construction equipment is properly maintained to minimize emissions - Air quality monitoring. - Ensure use of hand tools where appropriate - Establishing buffer zones and physical barriers around the most intense emission sources - Schedule activities based on weather forecast - Use of wet cutting methods rather than dry cutting for concrete work	- Air quality Monitoring within the site - Periodic Employee Health Monitoring	Proponent/Contractor	During construction Phase

Water Resources Impacts	- Source construction water from approved and licensed suppliers. - Monitor and control water use to avoid over-abstraction. - Use water-efficient construction practices and reuse water where feasible. - Construct temporary drainage channels and sediment traps. - Provide lined concrete washout pits away from drains - Prohibit discharge of wastewater into storm drains or open ground - Store fuels and oils in bunded areas with secondary containment - Provide spill kits and enforce immediate spill cleanup procedures - Regular inspection and maintenance of drainage systems.	- Volume of water consumed during construction - Presence or absence of sediment in runoff and drains - Condition and functionality of drainage channels and sediment traps - Number of spill incidents reported and response time - Visual signs of soil erosion, ponding, or water contamination	Proponent/ Contractor	Construction and Operation Phase.
Oil leaks and spills	- Fuels, oils, chemicals, and cement should be stored in designated areas with impermeable surfaces and secondary containment capable of holding the volume of the largest container plus an additional margin for rainfall - Concrete mixing should occur in controlled areas where rinse water can be captured and properly disposed. - Spill kits containing absorbent materials, containment booms, and personal protective	- General observation - Analysis reports	Proponent/ Contractor	During construction

	equipment should be readily available at locations where spills might occur. - Workers should receive training on spill response procedures. - Regular inspections of hydraulic lines, engine seals, and fluid levels identify developing problems.			
Liquid waste	- Provide adequate, dedicated sanitation facilities for construction workers - Ensure portable toilets are regularly serviced, emptied, and cleaned - Separate construction workers' sanitation facilities from hospital facilities - Direct cement-contaminated wash water to lined concrete washout pits - Prohibit discharge of wastewater into storm drains or open ground - Conduct machinery servicing in designated areas with impermeable surfaces - Store oils and fuels in sealed containers within bunded areas - Provide spill kits and enforce immediate spill	- Number and condition of functional sanitation facilities on site - Frequency of toilet servicing and waste removal - Presence of wastewater ponding, leaks, or odours - Evidence of oil stains or contamination on soil or drains - Records of spill incidents and response actions - Condition of drainage systems and washout pits	Proponent/ Contractor	During construction

	containment and cleanup			
Soil and Land Degradation	- Limit excavation and earthworks to only necessary areas - Stabilize exposed soils immediately after excavation using grassing or mulching - Install silt fences and sediment traps around disturbed areas - Backfill and compact trenches and excavations promptly - Avoid stockpiling soil near riverbanks or drainage channels - Cover soil stockpiles during rainy periods to prevent erosion - Restrict heavy machinery movement to designated access routes - Rehabilitate disturbed areas through re-vegetation and landscaping - Implement proper waste management to prevent soil contamination - Regularly inspect the site for signs of erosion	- Topsoil erosion during excavation and clearing activities - Soil compaction from heavy machinery reducing soil fertility - Potential contamination from fuel/oil spills, cement runoff, and construction chemicals - Disruption of natural drainage patterns leading to localized flooding or waterlogging	Proponent/ Contractor	During construction and operation phase.

	and take corrective action.			
Traffic congestion during construction	- Traffic management plan to be developed before construction begins. - Delivery scheduling- Restricting deliveries to off-peak hours, mid-morning and early afternoon. rather than during peak commute times. - Consolidated deliveries, where multiple items are combined onto single trucks rather than arriving on separate vehicles. - Worker transportation management to minimize numerous vehicle trips. - Parking arrangements that designate specific parking areas for construction vehicles, - Trained traffic marshals positioned to guide traffic around temporary obstacles.	- Traffic buildup - Road rage	Proponent/ Contractor	During construction
Public Safety	- Isolation controls shall be employed, where site will be secured off from the public and residents - Designated exclusion zones beneath work areas combine to minimize falling object risks.	- Accidents/Injuries/Near Misses - Public/Residents' Complaints	Proponent/ Contractor	During construction Phase

	- Use of debris netting to catch falling objects. - Work permits for high-hazard activities - Access control that restricts entry to construction zones prevents unauthorized exposure to hazards. Physical barriers including fences, locked doors, or barricades prevent inadvertent entry. Signage warning			
Occupational Health & Safety	- Develop and implement a site-specific Occupational Health and Safety Plan - Provide and enforce use of appropriate Personal Protective Equipment (PPE) - Fence off construction zones and restrict access to hospital staff and patients - Separate construction activities from hospital operational areas - Conduct regular safety training, toolbox talks, and site inductions - Install warning signs, barricades, and clearly marked access routes - Ensure safe scaffolding, fall protection systems, and secure work platforms - Provide fire extinguishers and train	- Number of reported accidents, injuries, or near-miss incidents - PPE availability and compliance rates - Records of safety training and toolbox talks conducted - Condition of safety signage, barriers, and access controls - Fire safety equipment inspection records	Proponent/ Contractor	During construction Phase

	designated fire marshals - Provide first aid kits and trained first aiders on site - Enforce infection prevention and control measures for all workers			
Gender Conflict	- Implement gender-sensitive human resource policies that promote fairness and equality. - Ensure transparent recruitment, promotion, and remuneration processes based on merit. - Establish confidential reporting mechanisms for gender-related complaints and harassment.	- Complaints related to gender discrimination or harassment. - Unequal gender representation in certain job categories. - Increased staff turnover linked to workplace relations. - Reports of dissatisfaction related to gender treatment.	Proponent	Annually During Operations Phase
Structural Integrity of buildings	- Conduct structural and geotechnical assessments - Reinforce foundations and stabilize soil where needed	- Cracks appearing on walls, floors, and ceilings after construction - Uneven settlement or	Contractor Proponent.	During Construction and Operation Phase

	- Use durable, moisture-resistant construction materials - Implement regular building inspections and monitoring - Repair cracks and damaged components promptly - Ensure proper drainage around buildings - Train staff on building maintenance and early issue reporting	- visible foundation movement - Water accumulation around building foundations - Deterioration of building materials (plaster, concrete, or finishes) - History of maintenance or repair issue		
Liquid Waste	- Direct all hospital wastewater to the existing septic tank system for proper treatment. - Install grease traps in kitchen and laundry areas to capture fats, oils, and grease. - Ensure pre-treatment of wastewater from laboratories and theatres where required. - Conduct regular inspection, maintenance, and desludging of septic tanks and sewer lines. - Prohibit discharge of untreated wastewater into storm drains or open ground. - Implement infection prevention and control procedures for handling hospital wastewater.	- Wastewater volume depends on patient load and hospital activities. - Condition of septic tank, sewer lines, and drains depends on age, design, and maintenance. - Blockages and overflows are influenced by grease, waste disposal, and upkeep. - Effluent quality depends on	Proponent / Site manager	During Operations

	- Train staff on proper sanitation practices and safe disposal of chemicals. - Develop and implement a hospital wastewater management plan.	treatment efficiency and pre-treatment practices. - Sanitation complaints depend on hygiene, facility access, and maintenance.		
Pressure on Water Resources	- Implement water conservation measures and operational guidelines to reduce unnecessary water use. - Install rainwater harvesting systems for non-potable uses such as cleaning and landscaping. - Schedule high water-demand activities, including laundry operations, to reduce peak pressure on supply systems.	- Increased daily water consumption compared to baseline levels. - Frequent peak demand periods during operational hours. - Reduced water pressure or intermittent supply during high-use periods. - Increased water utility bills.	Proponent	Annually During Operations Phase
Solid Waste management	- Provide adequate, clearly labelled waste bins in all hospital areas - Use colour-coded bins for general (non-hazardous) waste in accordance with Ministry of Health guidelines	- Availability and condition of waste bins in wards and service areas - Frequency of waste collection and disposal	Proponent	During Operations

	- Ensure waste bins are covered, durable, leak-proof, and easy to clean - Conduct regular waste collection to prevent accumulation and odour - Store waste in a designated, secure waste holding area before disposal - Engage licensed and approved waste collectors for final disposal - Train staff and cleaners on proper waste segregation and handling - Implement a hospital solid waste management plan	- Presence of odour, litter, or pests in waste areas - Records of waste collection by licensed handlers - Staff compliance with waste segregation procedures.		
Medical Waste	- Implement strict medical waste segregation at source using colour-coded bins and liners - Use puncture-proof sharps containers for needles and sharp instruments - Provide clearly labelled bins for infectious, pathological, and pharmaceutical waste - Store medical waste in a secure, restricted access area - Treat medical waste using approved methods - Engage NEMA-licensed medical waste	- Compliance with waste segregation and colour-coding systems - Number of needle-stick injuries or waste-related incidents reported. - Condition and availability of sharps containers and medical waste bins. - Records of medical waste treatment and disposal by licensed operators - Results of internal audits on healthcare waste management practices	Proponent	During Operation phase

	handlers for transportation and disposal - Train healthcare workers and support staff on medical waste management and infection control - Provide appropriate PPE for all staff involved in waste handling - Develop and enforce a healthcare waste management plan in line with Ministry of Health and WHO guidelines.			
Public Safety	- Isolation controls shall be employed, where site will be secured off from the public and security personnel appointed to ensure unauthorized entry is prohibited.	- Accidents/Injuries/Near Misses - Public Complaints	Proponent	During Operations Phase
Occupational Health & Safety	- Implement and enforce an Occupational Health and Safety Management Plan - Adhere to infection prevention and control (IPC) protocols, including hand hygiene and use of PPE - Provide puncture-proof sharps containers and enforce safe sharps handling procedures - Ensure regular training of staff on OHS, IPC,	- Number of reported occupational injuries, infections, or near-miss incidents - Availability and proper use of PPE by staff - Records of OHS and IPC training conducted	Proponent	During Operations Phase

	emergency response, and fire safety - Maintain clean, dry, and well-lit floors to reduce slip and fall risks - Proper labeling, storage, and handling of chemicals in accordance with safety data sheets - Install and maintain fire detection systems, fire extinguishers, and emergency exits - Provide appropriate lifting aids and promote safe patient-handling techniques - Establish staff welfare measures, including reasonable shift scheduling and psychosocial support	- Inspection and maintenance records for fire safety equipment - Incident and accident investigation reports - Compliance with Occupational Safety and Health Act, 2007 and Ministry of Health guidelines		
Waste Generation and Material Disposal	- Pre-decommissioning Waste Audit: Conduct a comprehensive inventory of all materials to be removed, categorizing them as recyclable, reusable, hazardous, or general waste. - Partner with licensed electronic waste recyclers who can properly extract valuable materials and safely dispose of toxic	- Solid Waste pile - Waste quantities	Proponent/ Contractor	During Decommissioning Phase

	components. Require certificates of proper disposal for all e-waste. - Set quantitative targets for recycling and reuse (e.g., 80% of metals recovered, 60% of total waste diverted from landfills) and track performance against these benchmarks.			
Potential exposure of workers and the public to hazardous materials and pathogens	- Conduct a pre-decommissioning hazard and contamination assessment - Remove and safely dispose of all medical waste and hazardous materials before demolition - Isolate decommissioning areas using barriers and warning signage - Provide and enforce use of appropriate PPE for all workers - Apply wet methods to suppress dust during dismantling - Restrict public access to decommissioning zones. - Engage licensed hazardous and medical waste handlers for disposal - Implement infection prevention and control procedures throughout decommissioning.	- Number of exposure or health incidents reported - PPE availability and compliance levels - Records of hazardous material removal and disposal - Air quality and dust levels during dismantling - Compliance with Public Health, OSH, and Waste Management regulation		
Air Quality Impacts	- Use water misting or fogging systems during cutting and grinding operations. Apply water to surfaces before dismantling concrete or heavily corroded components.	- Air Quality monitoring - Visual	The proponent/ Contractor	Decommissioning

	- Use precision cutting tools rather than impact methods that generate excessive dust. Employ vacuum-equipped tools that capture particulates at the source. - Erect temporary screens or barriers around work areas to contain dust and prevent particulate migration to adjacent properties, particularly important on windy sites. - Deploy real-time particulate monitors at site boundaries, especially near air intake vents of occupied spaces. Halt work if readings exceed acceptable thresholds. - Ensure all diesel vehicles and generators are properly maintained with emission controls functioning correctly. Use ultra-low sulfur diesel fuel. - Provide workers with appropriate respiratory protection (N95 or P100 respirators) for dusty operations. - Thoroughly clean all work areas with HEPA-filtered vacuums rather than compressed air blowing, which redistributes particulates.			
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Noise Pollution	- Limit noisy activities to daytime hours (typically 8 AM - 5 PM weekdays) Avoid early mornings, evenings, weekends, and holidays in residential areas. - Provide written notice to building occupants and neighbors at least 7-14 days before work begins, detailing schedule, expected noise levels, duration, and contact information for concerns. - Specify low-noise equipment in contractor requirements electric tools over pneumatic, with noise ratings under 85 dB where possible. - Ensure all equipment is properly maintained worn bearings, loose parts, and poorly maintained engines significantly increase noise generation. - Choose cutting methods over impact methods where feasible (saw cutting vs. jackhammering) - Establish dedicated contact person for noise complaints with authority to adjust work	- Noise decibel readings - Noise complaints	Proponent / Contractor	During Decommissioning
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	practices or timing if community impacts are excessive is relatively short. - Conduct baseline noise measurements and predict decommissioning noise levels. Identify sensitive receptors (residences, schools and offices) and distance to property lines.			
Traffic and Transportation Impacts	- Transportation Management Plan- Develop comprehensive plans identifying route selection, number of truck trips, vehicle types, timing, and parking/staging locations before work begins. - Coordinate material deliveries and waste removal during off-peak traffic hours (mid-morning or mid-afternoon) to minimize congestion contribution. - Select routes that avoid school zones, high-density residential areas, narrow streets, and known congestion points. Use highways and arterial roads rather than local streets where possible. - Maximize truck efficiency by coordinating shipments, using appropriate-sized vehicles,	- Traffic buildup	Proponent / Contractor	During Decommissioning

	and batching trips rather than multiple partial loads. - Notify local traffic departments, obtain necessary permits for oversized loads or lane closures, and coordinate with traffic management centers during transport. - Use traffic marshals where necessary to direct traffic. - Arrange dedicated staging areas away from public streets as much as possible. - Ensure trucks are roadworthy and properly secured loads. - Warn immediate neighbors and building occupants when large trucks or cranes will be accessing the site, advising on temporary parking restrictions or access limitations. - Encourage worker carpooling or use of crew vans rather than individual vehicles to reduce parking demand and traffic volume. - Use vehicle tracking systems to ensure drivers follow approved routes and schedules,			
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	providing accountability and data for community concerns.			
Employment and Livelihood Effects	- Prioritize hiring local contractors and workers for decommissioning activities, providing temporary employment opportunities in affected communities. - Where possible, offer affected workers positions at other company facilities or sites, even if relocation assistance is required. - For employees whose positions are eliminated, provide career counselling, resume preparation assistance, and job placement services. - Provide fair severance compensation based on length of service, including health insurance continuation assistance and unemployment benefit filing support.	- Contractor terminations - Employment terminations	Proponent / Contractor	During Decommissioning
Community Safety During Decommissioning	- Comprehensive Safety Plan: Develop site-specific health and safety plans addressing fall protection, electrical hazards, heavy	- Accident records	Proponent / Contractor	During Decommissioning

	equipment operations, confined spaces, and emergency response procedures. - Establish secure work zones with fencing, barriers, or safety tape preventing unauthorized access by building occupants or public. Post warning signage in multiple languages. - Install overhead protection canopies, nets, or catch platforms where materials could fall onto occupied areas, walkways, or parking lots below. - Use trained traffic marshals, barriers, and signage to safely separate pedestrians and vehicles from construction equipment and material movement. - Cover and protect building access routes used for equipment removal. Post warning signs and restrict access during material transport. - Require all workers have appropriate certifications (fall protection, electrical safety, confined space, rigging) and verify credentials before work begins.			
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	- Conduct toolbox talks each day reviewing specific hazards, work plans, weather conditions, and safety expectations. - Establish emergency procedures with building management, including evacuation routes, emergency contacts, first aid provisions, and nearest medical facilities. - Conduct daily pre-use inspections of all equipment, tools, fall protection gear, and lifting devices. - Use multiple communication methods (posted notices, email, text alerts) to warn building occupants of specific hazards during high-risk operations. - Assign dedicated safety officers with authority to stop work if unsafe conditions develop. - Establish clear procedures for reporting near-misses, injuries, property damage, or safety concerns. Investigate all incidents and implement corrective actions.			
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11. CONCLUSION AND RECOMENDATION

The proposed construction of the South Rift Level VI Teaching and Referral Hospital in Kericho County is both justified and viable. The project addresses a critical gap in access to specialized healthcare services within the South Rift Region, particularly in reducing delays associated with referrals to distant facilities such as Moi Teaching and Referral Hospital. The high incidence of road traffic accidents along the Londiani corridor, coupled with a rapidly growing population, further reinforces the need for a fully equipped Level VI referral and trauma facility in the region.

The project demonstrates strong socio-economic capabilities through its potential to improve health outcomes, reduce mortality rates, create employment opportunities, and stimulate local and regional economic development. It is also aligned with key national frameworks, including Universal Health Coverage (UHC) and Kenya Vision 2030, thereby strengthening its strategic relevance and justification for public investment.

From an environmental and social perspective, the anticipated impacts are largely manageable and can be effectively mitigated through the implementation of the proposed Environmental and Social Management and Monitoring Plan (ESMMP). Climate-related risks, including extreme weather events and environmental degradation, have been adequately considered, and appropriate adaptation and mitigation measures have been integrated into the project design.

Institutionally, the project is feasible given the involvement of the State Department for Medical Services and other relevant government agencies, which have the mandate and capacity to implement and manage large-scale health infrastructure projects. Financial factor is supported through government commitment and potential development partner support, ensuring adequate resource mobilization for both capital and operational phases.

However, the overall objective of the project is contingent upon strict adherence to environmental safeguards, effective project management, and timely allocation of financial resources.

Recommendations

- The project should proceed to implementation, subject to approval by the National Environment Management Authority and compliance with all regulatory requirements.
- Full implementation of the Environmental and Social Management and Monitoring Plan (ESMMP) should be prioritized to ensure that environmental and social risks remain within acceptable limits.
- Regular environmental audits, Occupational Safety and Health (OSH) audits, and fire risk assessments should be conducted throughout the project lifecycle to ensure compliance and continuous improvement.
- Sustainable design principles, including climate resilience, energy efficiency, and resource optimization, should be fully integrated into the final engineering designs and construction processes.
- Adequate funding mechanisms and financial oversight should be established to ensure timely project completion and long-term operational sustainability.
- Stakeholder engagement should be maintained throughout implementation to enhance

transparency, community acceptance, and overall project success.