THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH COMMUNITY DEVELOPMENT GENDER ELDERLY AND
CHILDREN

ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED UPGRADING OF
EBOLA TREATMENT CENTER AT TEMEKE HOSPITAL IN TEMEKE
MUNICIPALITY, DAR ES SALAAM, TANZANIA.

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EXECUTIVE SUMMARY

Title and Location of the Project or Undertaking

The Ministry of Health, Community Development, Gender, Elderly and Children (MHCGEC) with support of the World Bank intends to upgrade the Temeke treatment center, located at Temeke hospital in Temeke Municipality to serve both as the Dar es Salaam region and national Ebola Treatment Center. The upgrading will involve construction of a small mortuary building, incinerator, boundary wall (concrete fence) as well as landscaping of the area including construction of vehicle parking lots and washing bays for ambulances.

Hence, this particular project titled Environmental and Social Impact Assessment Report for the Proposed Upgrading of Ebola Treatment Center at Temeke Hospital in Temeke Municipality, Dar es Salaam. The construction will take place within Temeke hospital’s premises where there is currently the Chorela isolation center. Administratively the project site is located in Temeke Municipality, Dar es Salaam region. The site is approximately 1km away from the Kilwa road as well as from the National Stadium and Saba saba grounds. The site is also about 13km away from the Julius Nyerere International airport.

Name of the Proponent and Contact

The Ministry of Health, Community Development, Gender, Elderly and Children (The Client) is the project proponent. The main Contact at MHCGEC is:

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Contact person: Dr. Mpoki Ulisubisya

An Individual Consultant has been commissioned to undertake the EIA on behalf of the MHCGEC and TMC. The contact details of the Consultant are shown below.

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**Justification of the Proposed Project**

According to WHO (2014), it is not always possible to identify patients with Ebola Virus Disease (EVD) early in the course of their illness because initial symptoms may be non-specific. WHO emphasizes that suspected patients or confirmed with EVD should be isolated in single rooms or if unavailable, in specific confined areas while rigorously keeping suspected and confirmed cases separate. WHO standard require clinical and non-clinical personnel as well as dedicated equipment to be exclusively assigned to EVD patient care areas. Access to these areas should be restricted and visitors’ access should be limited to those essential for the patient’s well-being and care (e.g. child’s parent). Therefore, because of this description upgrading of Temeke Ebola Treatment center is an initiative that aim to protect citizens from EVD and to meet WHO standards and recommendations. The project will enhance our national preparedness against Ebola and other diseases of similar nature.

**The Project Environment**

The proposed site is contained within the boundaries Temeke Isolation Center’s compound which all together is owned by the Temeke Municipal Council (TMC). A large portion of the project site is occupied by administration block and wards for the existing infection diseases center as well as waste stabilization ponds. The remaining part of the site is unoccupied/undeveloped, covered by grasses and three old trees and that is where the proposed development will take place. Thus, in light of the proposed development, trees and grasses will be cleared to allow for upgrading of the of the proposed Ebola treatment Center and related facilities named as incinerators, fence and landscaping. Generally, topography of the area is flat and the soils consist of sand with moderate drainage like other parts of Dar es Salaam.

**Relevant Policies and Legislations**

Relevant Policies were highlighted in relation to the proposed project. Examples of some of the most relevant policies include but are not limited to: the National Environmental Policy (URT, 1997), the Land Policy (URT, 1995), the National Energy Policy (URT, 2003), the National Health Policy (URT, 2003), the National Construction Policy (URT, 2003), the National Water Policy (URT, 2002), Gender Development Policy (2000), the and the National Policy on HIV/AIDS, 2001, Construction Industry Policy (2003), The Tanzania Mineral policy, (2009)

In terms of legislations, some of the most relevant legislation and regulations were identified including, but not limited to: the Environmental Management Act, Cap 191, the Environmental Impact Assessment and Audit Regulations G.N. No. 349 of 2005, the Environmental
(Registration of Environmental Experts) Regulations (2005), the environmental Management (Air Quality Standards G. N. No. 237) Regulations, 2007, the environmental Management (Water Quality Standards G. N. No. 238) Regulations, 2007, the Land Act, 2002, the Occupational Health and Safety Act No. 5 of 2003, the Local Government (Urban Authorities) Act, 2002, the Water Resource Management Act, 2009, the Workers Compensation Act, 2008, the Urban Planning Act, 2007, the Contractors Registration (Amendments) Act, 2008 and the Engineers Registration (Amendment) Act, 2007. Also other international best practices such as World Bank Safeguards (OP.4.0) and WHO standards and guidelines have been considered.

A section on the Administrative Framework is presented. It illustrates various stakeholder groups and highlights their roles and responsibilities in relation to the activities that are associated with this project. It is important to show this since the management (operations) of the Temekè’s Ebola Treatment Center project will have to be considered in line with the existing Administrative Framework.

The existing conditions in terms of biophysical surroundings are described. The information covers the following aspects, rainfall, vegetation types, soil and average temperature. The Socio-Economic environment of the general area is also presented. These baseline conditions are also reflected based on feedback that we received from consultations with various stakeholders during scoping and impact assessment. This covers issues such as what people do for a living, and how the project could impact them and potential interventions to minimize and mitigate the adverse impacts of the project on people and the environment.

**Project Stakeholders and their Involvement in the EIA Process**

The stakeholders were identified based on their roles, relevance, and potential to be impacted by or to impact the project. Most of the stakeholders that might be impacted by the project e.g. the Government agencies within the compound, local government authority, neighboring residents were pre-determined, while others were pointed out by other stakeholders during consultation. Some of the stakeholders unfolded as consultations went along, e.g. groups and individuals in the vicinity of the project area.

The consultant together with MHCGEC and TMC visited the proposed project site and the neighboring community. Physical observations and stakeholders interviews were conducted in order to collect baseline data and issues of concerns. The scoping study applied different participatory methods to involve all the relevant stakeholders. One-to-one interviews with individuals, based upon a list of general topics or questions and partly based on an open discussion, were conducted. Focused group discussions were also used to gather more information.
To facilitate the consultation process, the proponent (i.e. MHCGEC) provided the consultant with letter of introduction which was addressed to various stakeholder, informing them about project, the need for EIA and requesting their participation in the assessment process. In addition, Notices were posted on strategic places requesting stakeholders to raise their concerns via writing or verbally through communication channels provided in the notices. Furthermore, notices were published in public newspapers (i.e. both English and Kiswahili newspapers).

**Impacts Considered**

The impacts considered were those identified by most of the stakeholders. Impacts, both physical and socio-economic were firstly highlighted depending on the stage of the project (e.g. mobilization/construction, operation, decommissioning). These impacts were then considered in terms of how they would positively or negatively impact society, and how long they would last, whether they are residual, short term, long term, or cumulative. Most of the impacts that were identified by stakeholders were addressed.

**Environmental and social Impact Assessment**

The EIA study identified a number of environmental and social impacts for the entire life cycle of the project. The potential environmental and social impacts considered in the EIA process include impacts to the air, water resources, land resources, and socio-economic/cultural conditions during mobilization, construction and operation of the treatment center. The social/cultural resources evaluated include labor employment, raw material sources, transportation, improved Ebola diagnosis and treatment services, and local community services.

**Description of the Major Significant Impacts**

Major and Significant Impacts for the purposes of this report are mainly considered as the impacts types which are of high negative significance over a long period of time in terms of their duration. Also, those which are of high negative significance as well as cumulative fall into this category; potential impacts identified for this project are listed below:

**Potential Positive Impact**

- Creation of Employment
- Increase of Business Opportunities due to increased population in the area
- Improved diagnosis and treatment services for Ebola and other related diseases in the Country
Potential Negative Impact

- Vegetation Clearance/Loss of Biodiversity
- Contamination of land and water due to accidental spills
- Increased Sediment Loads due to Erosion after site clearance
- Environmental Pollution due to Poor Management of Construction Waste
- Health hazards associated with construction work
- Spread of HIV/AIDS due to interaction with local communities
- Environmental Pollution Due to Poor Non-medical Waste Management
- Environmental Pollution Due to Poor Biomedical Solid Waste Management
- Environmental Pollution due to Liquid waste generation
- Occupational Health and Safety Hazards Associated with construction and operation of Ebola Treatment Center
- Air pollution due to Incineration (e.g. smokes)
- Increased electricity and water consumption during construction and operation phase
- Loss of aesthetics due to haphazard disposal of demolished waste (e.g. during decommissioning)
- Dust and noise pollution from demolishing works during decommissioning

Alternatives Considered

The preferred alternative would see the construction of Temeke Ebola Treatment Center as proposed by the MHCGEC, and as outlined in this EIA document. This alternative, with the implementation of the proposed mitigation measures, will have only a minimal impact on the environment, and will represent an improvement in health social-wellbeing of all Tanzanians through improved capability for early detection, diagnosis and treatment of Ebola and other deadly infectious diseases contrary to the current situation whereby the country lack the much needed preparedness in terms of capacity (skills and infrastructure).

The “No-action” alternative is difficult to consider as a viable option due to the existing situation with the country and its citizens highly vulnerable to growing incidences of infectious disease outbreaks. Potential negative impacts on the environment can be managed to acceptable levels. It is therefore, viewed that the No-Action alternative will be more detrimental to the Tanzanians as compared to implementing the proposed project for upgrading Ebola treatment center. Therefore, the no-development option is not recommended.

Environmental and Social Management Plan

An Environmental and Social Management Plan (ESMP) has been developed to implement the proposed environmental mitigation measures during mobilization, construction, operation and
eventual decommissioning of the project. The plan focuses on measures to be applied in the field and management actions to minimize potentially adverse impacts and enhance positive impacts.

**Environmental and Social Monitoring Plan**

An Environmental and Social Monitoring Plan has been developed to monitor the efficiency of the environmental mitigation measures and socio-economic initiatives specified in the ESMP. It supports the ESMP by maintaining a record of environmental performance and enabling adjustments to be made to mitigate environmental and socio-economic impacts during the lifetime of the project. The Monitoring Plan consists of the set of monitoring parameters, responsible institution and standards/targets to be achieved.

**Cost Benefit Analysis**

The potential benefits of the project, in terms of financial and social benefit are substantial. Similarly, the environmental impacts can be reasonably mitigated and the financial resources needed to mitigate negative impacts, are relatively small compared to the cost of not building the Ebola center in terms of potential loss of lives and associated man-power.

**Decommissioning**

A preliminary decommissioning plan has been developed. The plan provides a general description of decommissioning methods considered to be feasible for the Ebola Treatment Center’s project. The description is intended to demonstrate that the methods considered are practical and that they protect the, Environment, health and safety of the public and workers. Design experts should study the proposed decommissioning methods and take steps to ensure that the design incorporates features that will facilitate decommissioning.

Project decommissioning has five phases: (i) pre-removal monitoring; (ii) permitting; (iii) interim protective measures; (iv) Project removal and associated protective actions; and (v) post-removal activities, including monitoring of environment and socio economic activities. The first three phases will occur prior to removal of the project infrastructure. The fourth phase will take place twelve months after closing business. The fifth phase will begin after total removal of the project infrastructure and continue for at least one year.

**Conclusions**

Given the nature and location of the project, we can conclude that the potential impacts associated with the proposed project are of a nature and extent that can be reduced, limited and eliminated by application of appropriate mitigation measures specified in the Environmental and Social Management and Monitoring Plans. It therefore emphasized that the client and there
contractor adhere to the recommendations provided in these tools in order to safeguard both the environment and communities.

**NAME OF LEAD EXPERTS FOR THE EIA STUDY**

<table>
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<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organization</td>
</tr>
<tr>
<td>CDC</td>
<td>Centre for Diseases Control and Prevention</td>
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<tr>
<td>CTC</td>
<td>Care and Treatment Clinic</td>
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<tr>
<td>DAWASA</td>
<td>Dar es Salaam Water &amp; Sewerage Authority</td>
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<tr>
<td>DAWASCO</td>
<td>Dar es Salaam Water &amp; Sewerage Corporation</td>
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<td>DoE</td>
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<td>EIA</td>
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<td>EMA</td>
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<tr>
<td>EHF</td>
<td>Ebola Haemorrhagic Fever</td>
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<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
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<tr>
<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
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<td>ESO</td>
<td>Environmental Site Officer</td>
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<td>EVD</td>
<td>Ebola Virus Disease</td>
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<tr>
<td>FYDP</td>
<td>Five Year Development Plan</td>
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<td>GHG</td>
<td>Greenhouse Gases</td>
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<td>GRM</td>
<td>The Government Republic of Malawi</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>International Labour Organization</td>
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<td>ITV</td>
<td>Independent Television</td>
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<td>Julius Nyerere International Airport</td>
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<td>LED</td>
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<td>Non-governmental organization</td>
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<td>Material Safety Data Sheet</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>OCP</td>
<td>Operational Control Procedures</td>
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<td>OSHA</td>
<td>Occupational Safety and Health Authority</td>
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<td>Particulate Matter</td>
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<td>Personal Protective Equipments</td>
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<td>Terms of Reference</td>
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<td>TTCL</td>
<td>Tanzania Telecommunication Company Limited</td>
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<tr>
<td>UTM</td>
<td>Universal Transverse Mercator</td>
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<td>UDSM</td>
<td>University of Dar es Salaam</td>
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<td>URT</td>
<td>United Republic of Tanzania</td>
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<td>VOC</td>
<td>Volatile Organic Compound</td>
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<td>VPO</td>
<td>Vice-President’s Office</td>
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<td>WHO</td>
<td>World Health Organization</td>
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ACKNOWLEDGEMENT

This Environmental Impact Assessment (EIA) Report was produced for the proposed upgrading of Temeke Ebola Treatment Center within Temeke Municipal Hospital premises, Temeke District, Dar Es Salaam Region, Tanzania. The report was written based mainly on field work and secondary data from other various reports and documents which are cited in the report. The Ministry of Health, Community Development, Gender, Elderly and Children (MHCGEC) would like to acknowledge; - the National Environment Management Council (NEMC) for reviewing the project brief, scoping report and the Terms of Reference, that enabled the Consultant to address all pertinent issues raised by different stakeholders. Also MHCGEC wishes to extend special thanks to the consultant Mr. E. Kaijage and his team for carrying out this assignment. All stakeholders as listed in appendix 3 are also acknowledged for their invaluable inputs that enabled preparation of this report.
1.0 GENERAL BACKGROUND

1.1 TEMEKE EBOLA TREATMENT

The Ministry of Health, Community Development, Gender, Elderly and Children (MHCGEC) in collaboration with the Temeke Municipal Council of P.O. Box 46343, Dar es Salaam, intends to upgrade the existing Temeke Isolation Center located at the Temeke Municipal hospital so that it can serve as a Dar es Salaam regional/National Center for treatment of Ebola cases. Temeke Ebola Treatment Center started as an isolation unit for other infectious diseases such as Cholera and Measels. In August 2014 the center was designated by the President of the Fourth-phase government his Excellency Dr. Jakaya Kikwete as the national and regional treatment center for Ebola epidemics. Hence, the proposed upgrading seeks to prepare the center so that it fulfill the duties and functions that it has been nominated for. Therefore, the upgrading work will involve renovation of Ebola ward building, construction of mortuary building and boundary wall, installation of an incinerator, as well as implementation of external work such as landscaping and paving. This development is aimed at strengthening Tanzania’s preparedness against the growing threats of infectious disease outbreaks such as Ebola in the region.

1.2 EBOLA DISEASE

Ebola Haemorrhagic Fever (EHF) commonly known as Ebola is an acute infectious febrile illness that is associated with bleeding manifestations and very high fatality. Ebola is a new emerging threat of public health in Africa. The high fatality and the continuous high risk faced by health care workers make it an important nosocomial infection. Unfortunately, at the moment the disease has no known treatment (Okware, 2015).

The Ebola Virus is transmitted to people from wild animals and spreads in humans through direct contact with the blood, body fluids and tissues of infected people. Severely ill patients require intensive supportive care. During an outbreak, those at high risk of infection are health workers, family members and others in close contact with the sick and deceased.

Ebola outbreak was reported in various areas in 2007 in Democratic Republic of Congo, 2009 in United States of America, 2011 was reported in Uganda. However the outbreak that was reported in 2014 had devastating impacts on the economy and people’s life in the West African countries of Liberia, Guinea and Sierra Leone (GRM 2016). Ebola preparedness has been effective approach since the 2014 break in Western Africa. Ebola preparedness and response involves infection prevention and control training. No Ebola case has been reported in Tanzania, however due to being highly infectious and rapidly fatal, the country has been taking measures for preparedness and response. To this effect, the government established in 2014 screening protocol
at point of entries where screening gadgets such as thermo scanner, infrared non-contact thermometer were supplied and installed.

In order to ensure that upgrading of the Temeke’s Ebola Treatment Center does not contravene with requirements of applicable laws and regulations especially those on environment, the MHCGEC has commissioned the consultant Mr. E. Kaijage a registered Environmental Expert to undertake Environmental and Social Impact Assessment study. This is in line with the Environmental Management Act, Cap 191 and its Environmental Impact Assessment and Audit Regulations of 2005, which require projects of this nature to be subjected to screening by the National Environment Management Council that determines the sort of assessments needed before development is undertaken. In right of that, the consultant prepared EIA registration documents as the initial stage of the Environmental Impact Assessment process. These documents were reviewed by NEMC leading to a decision that required the proponent to undertake a fully-fledged EIA study of the proposed project. The decision was communicated to the proponent through a letter with Reference No. NEMC/HQ/EIA/11/0229/Vol.I/02.dated 12/02/2015 (Appendix 2.2).

Following this communication, the EIA consultant undertook the scoping study prior to preparation of the EIA report that identified key environmental and social issues and concerns as well as stakeholders requiring special attention during the EIA study, as per Environmental Impact Assessment and Environmental Audit Regulation G.N. No 349 of 2005. The scoping involved field visits, consultations with stakeholders at national and local levels and analysis of issues through desk studies. This scoping exercise was conducted from 10th March to 3rd April 2016. The scoping study culminated into Terms of Reference (see appendix 1) that was submitted to, and approved by NEMC through letter dated May 27th 2016 with reference number NEMC/HQ/EIA/11/0229/Vol.I/04 (appendix 2.1). These ToR provided guidance under which the environmental assessments were done. The EIA study was conducted from 18th April to 16th May 2016 in accordance with EMA cap 191 and EIA and Audit Regulations, G.N. No 349 of 2005.

1.3 RATIONALE OF THE PROJECT

Ebola preparedness has been effective approach to prevent spread of the disease since the 2014 outbreak in Western Africa. Ebola preparedness and response involves infection prevention and control training. According to WHO, the introduction of Ebola into unaffected countries remains a risk, as long as Ebola incidents exist in any country. However, with adequate preparedness and response plan, such risk can be contained through a timely and effective response.

According to WHO (2014), it is not always possible to identify patients with Ebola Virus Disease (EVD) early in the course of their illness because initial symptoms may be non-specific.
Therefore it is important that health workers at all levels carefully apply standard precautions on a consistent basis, with all patients regardless of their diagnosis. WHO emphasizes, suspected patients or confirmed with EVD should be isolated in single rooms or if unavailable, in specific confined areas while rigorously keeping suspected and confirmed cases separate. WHO standard require clinical and non-clinical personnel as well as dedicated equipment to be exclusively assigned to EVD patient care areas. Access to these areas are also need to be restricted and visitors’ access should be limited to those essential for the patient’s well-being and care (e.g. child’s parent). Based on the above descriptions upgrading of Temeke Ebola Treatment center is an initiative that aim to protect citizens from EVD and to meet WHO standards and recommendations. The project will enhance our nation’s preparedness against Ebola disease and other related epidemics.

1.4 OBJECTIVES OF THE PROJECT

The overall objective of this project is to strengthen the preparedness of Tanzania against the growing threats of infectious disease outbreaks such as Ebola in the region. This is to be done through upgrading of the Isolation Center located at the Temeke Municipal’s hospital to a level of serving as both the regional (i.e. Dar es Salaam regional) and National Center for diagnosis and treatment of Ebola epidemics.

This upgrading is in response the directives given in August 2014 by the President of the Fourth-Phase government, his Excellency Dr. Jakaya Kikwete, for establishment of the same owing to the growing concerns over Ebola disease and related epidemics in the region. The proposed upgrading will involve construction of mortuary building and boundary wall, installation of an incinerator as well as implementation of external works such as landscaping and paving

1.5 SCOPING

Scoping was conducted in March to April 2016 and involved field visits, consultations with stakeholders and analysis of issues through desk studies. In line with the provisions of the national Environmental Impact Assessment & Audit Regulations, G.N. No. 349 of 2005, the scoping report identified key environmental and social issues and concerns of stakeholders requiring special attention during the EIA study. The outcomes of the scoping exercise were used to develop the ToR for the EIA which was approved by NEMC. Stakeholders’ consultations were carried out by the consultant to ensure that concerns of key stakeholders were addressed by the project design and subsequent implementation of the project.

Specifically, the scoping enabled the EIA team to:
• Identify project alternatives;
• Identify EIA study boundaries;
• Identify information requirements;
• Develop effective methods of approaching the EIA study;
• Define the terms of reference for the EIA study.

1.6 OBJECTIVES OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The Ministry of Health Community Development Gender Elderly and Children undertook the Environmental Impact Assessment of the proposed upgrading of the Temeke Ebola treatment Center in order to ensure that the proposed development will not cause significant adverse environmental and socio-economic impacts.

The EIA has been conducted in accordance with the guidelines laid down by the Environment Management Act (EMA, 2004). Part IV of the Environmental Impact Assessment Regulations of 2005 provides the general objectives for carrying Environmental Impact Assessment, namely:

• To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process;
• To anticipate, avoid, minimize or offset the adverse significant biophysical, social and relevant effects of developmental proposal;
• To protect the productivity and capacity of natural systems and ecological processes which maintain their functions;
• To promote development that is sustainable and optimizes resources use and management opportunities;
• To establish impacts that are likely to affect the environment before a decision is made to authorize the project; and
• To enable information exchange, notification and consultations between stakeholders;

1.7 APPROACH AND METHODOLOGY OF THE EIA STUDY

The approach and methodology used in this study is commensurate with the national EIA guidelines as well as inline with the WHO standards and World Bank guidelines on Social and environmental safeguards. The study was undertaken based on checklists complimented by past experience of the Consultants. EIA and scoping was done using both desktop study and fieldwork approaches. It involved review of literature and field studies at the proposed site to gather data on various aspects of the project, the project site and general characteristics of the project site. The assessment being a full EIA required consultation with a number of stakeholders
such as ministry, government agencies, NGO, local government, neighbouring residents. In this regard, the study adopted the following methods:

1.7.1 Literature Review

An intensive review of the available literatures on the proposed development was conducted. This included national policies, laws and regulations governing the health sector in Tanzania as well several books and published journals related to treatment center for Ebola and other infections. The review helped to identify areas where further information would be needed in order to focus the scoping exercise and the full EIA in general. The detailed review focused on social characteristics, surrounding the proposed project site. In addition, information on the current socio-economic activities within the immediate impact area and area of influence was reviewed and used to inform planning and design of this project.

1.7.2 Site Visit and Field Observation

To complement the review of available literature, reconnaissance field visit to the proposed project site (i.e. Temeke Treatment Center) was made, to collect more information/data. The Site visit was undertaken to assess project location and layout in relation to the proposed development activities. Also the site visit assessed the physical characteristics of the project area including the topography, vegetation and wildlife resources, economic activities, human population settlement and distribution in order to gauge the kind of issues and impacts that are likely to be of interest in the EIA process.

1.7.3 Consultation with Stakeholders

This involved the following:

1.7.3.1 Identification of stakeholders

The stakeholders were identified based on their roles, relevance, and potential to be impacted or to impact the project. Most of the stakeholders that might be impacted by the project e.g. the nearby local government authority and communities (e.g. Temekte Municipal Council, Temekte Wards and Local communities), Government Departments, Parastatal Organization (TANESCO, DAWASA, DAWASCO) and staff at Ministry of Health Community Development Gender Elderly and Children as well as staff at the Regional Commissioner’s Office were pre determined while others unfolded as consultations went along. Consultations were made with stakeholders listed in appendix 4.
1.7.3.2 Involvement of stakeholders

The consultant visited proposed project site (Temeke treatment Center) at Temeke Hospital. Physical observation was made and stakeholders’ interviews were conducted in order to collect baseline data and issues of concerns. The consultant applied different PRA tools by involving all the important stakeholders mentioned above. The Proponent provided the consultant with an introduction letter addressed to various stakeholders, clarifying the rational for EIA and asking them to cooperation by providing the necessary information to the consultant. In addition to interviews, notices were posted on strategic places requesting stakeholders who did have opportunity to raise their concerns to do so through written or verbal communications. Furthermore notices were published in both English and Kiswahili newspapers (Appendix 5).

Interviews were held with the main stakeholders nearby the project site as well as other institutions that, in one way or another, have interest in, or influence on the project. One-to-one interviews with individual based upon a list of questions and complemented by probing to explore more information were conducted. Focus group discussions were also conducted.

1.7.3.3 Identification of stakeholders’ concerns

Stakeholders pointed out a number of issues and concerns. An issue raised by one institution, individual or a group of people was cross-checked over through discussion with other institutions, individuals or groups.

Detailed account of stakeholder consultation including record of their main concerns, names and signatures of people consulted, records of meetings, communications and other issues is presented in Chapter 5.

1.7.4 Baseline Data and Information

Generally, baseline information on the bio-physical and socio-economic environment, institutional and legal conditions was collected from a variety of sources. These are presented briefly in the subsections below.

1.7.4.1 Biological Environment

Review of literatures related to the project was conducted in order to determine the status of the flora and fauna of the study area.

*Flora:* The categories of vegetation were identified and classified into community types. Dominant species were identified, described for their properties and documented.
**Fauna:** Information about the presence of any significant species was obtained from local communities in the area. Information on fauna was also gathered from existing literature on reported species as well as observations in the field.

1.7.4.2 Physical Environment

The consultant gathered information regarding the existing physical environment, particularly information related to soils, topography, geology, drainage, and water quality.

**Geology, Topography and Soils**

Existing reports and other sources were used to obtain and compiling information on the climate, soils, topography and geology. Published maps, satellite imagery and aerial photos were also examined. Fieldwork was conducted to verify collected information relating to geology, soil, climate and topography.

**Hydrology and drainage**

The team used field investigation, maps and data from previous reports to assess surface and groundwater characteristics.

1.7.4.3 Socio-economic Environment

In conjunction with desk research, rapid field appraisal techniques was employed to investigate the socio-economic considerations within the project area including:

- Land uses and livelihoods
- Development underway
- Population and settlement characteristics
- Infrastructures in place
- Recreational activities

1.7.4.4 Policy, Legal and Institution Arrangements

Policy, legal and institutional arrangement were compiled from review of documents i.e. polices, legislation, guidelines and standards. Information and data on local by-laws, institutional structures were obtained from Temeke Municipality.

1.8 IMPACT ASSESSMENT

This was done by superimposing project elements onto the existing natural conditions of the project site. Environmental impacts were then identified, their significance assessed and mitigation/enhancement measures proposed. The consultant, used the below general criteria to
evaluate significance of the identified impacts. Criteria for significance include but not limited to the following:

- Magnitude and likelihood of impact
- Spatial and temporal extent
- Potential to implement mitigation measures and controls
- Likelihood and degree/time scale of environmental recovery
- Value of the affected environment/social component
- Level of public concerns
- Political repercussions of the project

The scale of those negative and positive impacts that are likely to occur were determined using a range of low, medium and high:

- Low positive
- Medium/moderate positive
- High positive
- Low negative
- Medium/moderate negative
- High negative
- No apparent impact

As the proposed activities will be within occupied project land, cumulative effects are likely to occur and have been given consideration in the impact assessment as well as residual impacts that cannot be mitigated against. The assessment considers contribution to local and national environmental and socio-economic issues as well as global environmental issues.

### 1.9 STRUCTURE OF THE REPORT

The report is presented in accordance to the format given in Section 18 (1 and 2) of the Environmental Impact Assessment and Audit Regulations, 2005. The structure of this report is as follows:

- Executive Summary
- Table of Contents
- Acknowledgement
- List of Acronyms
- Chapter 1: Introduction
- Chapter 2: Project background and description
• Chapter 3: Policy, administrative and legal framework
• Chapter 4: Baseline conditions
• Chapter 5: Stakeholders Analysis
• Chapter 6: Assessment of Impacts and Identification of Alternatives
• Chapter 7: Environmental Mitigation Measures
• Chapter 8: Environmental and Social Management Plan
• Chapter 9: Environmental and Social Monitoring Plan
• Chapter 10: Cost Benefit Analysis
• Chapter 11: Decommissioning and Closure
• Chapter 12: Summary and Conclusions
• References
• Appendices
2.0 PROJECT LOCATION, SCOPE AND ACTIVITIES

2.1 PROJECT AREA

2.1.1 Location and Accessibility

The proposed project is located in Mibulani Ward, Temeke Municipality, Temeke District, Dar es Salaam region. The site for construction of the proposed building is located some 500 meters on the Western side of the Main Temeke hospital compound (coordinates: Latitude 10°29.969’S and Longitude 39°1.615’E). The site is accessible by tarmac road using both private and public transport services, which are available throughout the day and year. The site is located 2km of the Kilwa Road highway and the nearest airport is the Julius Nyerere International Airport (JNIA), which is located approximately 13km from the site. The map below (figure 1) shows location of the Temeke Municipal hospital.

![Map of Temeke District showing the location of the project site](MHCGEC, 2016)

**Figure 2.1: Map of Temeke District showing the location of the project site (MHCGEC, 2016)**

The site is accessible by road using both private and public transport services, which are largely available throughout the day. It is located at the corner of Sambwise and Makuti streets, 2 km off the Kilwa Road highway. The nearest airport is in JNIA approx. 13 km from the project site.
2.2 SITE DESCRIPTION

The proposed upgrading activities of the Ebola treatment center will take place on the premises of existing Temeke Isolation Center for diagnostic and treatment of infectious diseases (e.g. cholera) which is under the Temeke Municipal hospital. The size of the project site is about 200m² which is located some 500 meter away on the Western side of the Temeke Municipal hospital’s compound, at the junction of Sambwise and Makuti streets in Temeke municipality. The land area where the site is located belongs to the Temeke hospital as there are currently other buildings that are property of the Temeke hospital used as center for isolation and treatment of other infectious diseases such as Measels and Cholera. These buildings include the main wards for measles and Cholera patients, the newly constructed main Ebola treatment building unit and the Ebola staff lounge. The other important feature on the site is the Waste Stabilization Pond for the Temeke hospital.

The proposed development under this project (i.e. construction of the mortuary building and incineration chamber) will be built on the land area that is currently undeveloped, covered with grasses and 3 mature trees known botanically as *Azadirachta indica* on southern side of the center (see figure 2). These trees will therefore be felled to allow development of the site. The choice of this location for the proposed developed have been dictated by the following key conditions: (i) availability of unoccupied space for construction of new building(s), (ii) easy access by patient vehicles (ambulances) from the main road considering the infectious nature of the Ebola disease (iii) easy connection with important existing infrastructures such as waste Stabilization Pond for proper handling and management of medical waste.

*Figure 2.2: Proposed site for construction of Mortuary building and incinerator and Septic tank chamber (field photo, March 2016).*
2.3 ADJACENT FEATURES
As described above, the project site is located within the Temeke hospital’s isolation center for diagnostic and treatment of infectious diseases. The main development and activities in the immediate vicinity of the center include:

i) A private garage on the South  
ii) Makuti road/street (on the North), 
iii) Sambwise road/street on the West 
iv) UWT Building Block on the East, used as offices for UWT staff

2.4 LAND OWNERSHIP
The land area to be used for the proposed development is owned by the Temeke hospital through Temeke Municipality. Therefore, the project will not involve land acquisition as the project developer is the legal owner of the proposed project site.

2.5 EXISTING CONDITION

2.5.1 Existing components
The Temeke Isolation Center compound consists of different infrastructures as itemized below:

i) Access road  
ii) Water supply and storage tank  
iii) Storm-water drainage network 
iv) Electric supply 
v) Chain link Security fence 
vi) Isolation wards for cholera and measles infections 
vii) Main Ebola treatment block and staff lounge 
viii) Waste Stabilization Ponds system

2.5.2 Situation of the Center
Due to EVD outbreak in West Africa in 2014, the government of Tanzania designated a building, which was being used by the Temek Hospital as an Isolation center for cholera and Measles to be used as a Center for diagnosis and treatment of Ebola cases. However, the center was not able to operate effective and efficiently due to lack for some of key facilities such as mortuary and incinerator. Also the center was not in good standard enough to meet WHO standards and/or recommendation for Ebola Treatment Center. This has necessitated MHCGEC to upgrade the center by establishing the required facilities in order to bring the center to the required level. Therefore, the upgrading will involve construction of a dedicated mortuary and incinerator for the Ebola cases. Also upgrading will renovate the center to meet WHO standards for Ebola and other similar infections.
2.6 MAJOR COMPONENTS OF THE PROPOSED PROJECT

The upgrading project of Ebola Treatment Center at Temeke Hospital will be implemented under finance of both the government of Tanzania and the World Bank. The project implemented into two phases involving renovation of Ebola ward, construction of mortuary and septic tank, installation of incinerator, and construction of wall fence. The implementation of the project will be in two phases as detailed below:

2.6.1 Phase 1: Renovation of Ebola Ward

All activities under this phase are financed by the government of Tanzania. The major activity is renovation of Ebola existing ward which includes construction of patient’s latrines and showers (separate for Ebola suspect and confirmed patients), construction staff of latrines and shower, construction of staff changing and cool rooms, improvement of the floor, installation of air condition, and painting. Renovated ward will have a capacity of accommodating 27 Ebola patients at a time.

This phase also will focus on Infection Control Interventions, specifically provision and use of Personal Protective Equipment (PPEs). Under this phase, training of healthcare workers on the use of PPEs, provision of care and treatment to Ebola patients, infection prevention and control and waste management will be provide.

Tank with chlorine 0.5% with installed to supply to the center i.e. ward, mortuary and ambulance washing area. Water/chlorine taps in the ward and mortuary will be automatic and hand-free to reduce possibility of spread of infection.

2.6.2 Phase 2: Construction of Mortuary and Associated Facilities

The activities under this phase will finance by World Bank. The major components under this phase are as follows:

2.6.2.1 Construction of mortuary unit, septic tank and wall fence

Given the nature of Ebola diseases the mortuary building will be a small unit, capable of accommodating a maximum of two refrigerators with capacity of handling three corpses each which makes a total of 6 corpses at a time. In addition, according to WHO standards and guidelines, corpses will be expected to stay in the mortuary building for a very shortest period possible (i.e. buried within 24 hours) in order to avoid further infections to the public. It is expected the size of the mortuary will meet the need as other Ebola treatment centers will established in Moshi and Mwanza. To avoid the mortuary to exceed its carrying capacity at any time, the corpses will be barred frequently (within 8 hours) to ensure that the mortuary accommodates not more 4 corpses, leaving two spaces for emergency. This mortuary is specific for serving deceased person due to Ebola.
Septic tanks with adequate size to handle wastewater from ward and mortuary will be constructed. These tanks will be sealed to avoid risk of spread of infection to the environment. On its part, construction of the boundary wall, will simply involve replacement of the current chain link fence with the wall fence as shown in figures 3, 4, 5 & 6 below.

Figure 2.3: Map of the proposed mortuary building (MHCGEC, 2016)

Figure 2.4: Existing chain link fence and proposed wall fence structure (MHCGEC, 2016)
2.6.2.2 Installation of the incinerator

An incinerator using 2 chambers burning approach, to ensure full combustion control and elimination of noxious emissions, by carefully controlling temperatures in the primary and secondary chambers, and controlling the rate of combustion will be installed. The designed incinerator will have capacity to destroy 100kg of waste per hour. It has a fully enclosed burning to ensure the total burnout and treatment of infectious waste thereby avoiding secondary pollution. As such, it will be completely free from visible smoke as well as offensive odours. Also, with a flue gas purification chamber on the top, filled with calcium hydride filter bricks, it can absorb produced hydrogen chloride, sulfur oxide, and a long chimney, thereby ensuring no black smoke coming out. The incinerator is designed to use advanced pyrolysis gasification technology that ensures the high temperature ranging between 950°C and 1200°C, which is high enough to destroy all combustible medical wastes including glass. As a result, the incinerator has Organic removal rate of 99% and less than 5% ash rate. In addition, the incinerator has Air blower that provides enough oxygen for burning. Further, the incinerator is fitted with temperature monitor screen for controlling temperature to ensure optimal operations based on the nature the waste. The source of energy for operating this incinerator will be diesel and loading of waste will be done manually by trained operators with appropriate PPE.

All wastes treated in the incinerator will be converted into incinerator bottom ash, flue gases, particulates, and heat. The flue gases (mainly CO, NOX, SO2 N2O, HCL and HF) will be cleaned of gaseous and particulate pollutants before they are dispersed in the atmosphere. Ashes generated will be analyzed to determine presence of heavy metals and ways of disposing them. If metal-free, ashes will be disposed in the normal public landfill/dumpsite (e.g. Pugu Kinyamwezi) and if it is found to contain heavy metal it will be subjected for further treatment. More information on this incinerator can be found on the manufacturers website at http://sdbetter.en.made-in-china.com/

Fig. 2.5-1 Design of the proposed incinerator
Figure 2.5-2: Design of the proposed Incinerator (MHCGE, 2016)
2.6.2.3. Development of functionally related external works
This will involve Landscaping of the area, which will include establishment of parking lots for car (for staff and the public), washing bay for ambulances carrying infected people and, access roads for public and staff (see figure 7 below).
Figure 2.6: floor plan for the proposed landscaping works for the center (MHCGEC, 2016)
2.6.3 Other Support Facilities and Services
Other associated works included under the upgrading program for the Ebola treatment center include the following:

- Construction/renovation of Storm-water drainage systems
- Plumbing for connecting the new infrastructure to the existing water supply system

2.6.4 Equipment and Chemical
The upgrading project will involve supply and installation of number of equipment. The main equipment include the following: Ambulance, washing machine, Autoclaves, patient’s bed, mortuary refrigerator. Also personal protective equipment such as eyes, mouth and nose protection, gloves, disposable gown, footwear (water proof boot), head cover, waterproof apron. The main chemical that will be used is Chlorine 0.5%

2.7 UTILITIES

2.7.1 Water Supply
The main source of water supply in the project area is from the existing water supply scheme. The center is already connected to the DAWASA/DAWSCO water supply network such that the project will be simply tap water from this source. In addition the center has 10m$^3$ a water storage tank, which will serve as back up. Moreover, in order to reduce demand and stress on the environment, efficiency in water use will be emphasized through various water management practices.

Based on WHO recommendation require Ebola treatment center to have adequate amount water to meet the demand. It recommends that one bed require 200-300L per day. As explained earlier upgraded Temeke Ebola center will accommodate 27 beds, hence total of 8,100L of water per day will be needed. Therefore the available water reserve tank 10,000L is adequate to supply water for a day. The tank will be installed with automatic detector to allow replenishment of water used, which will enable the tank to be with water all the time.

2.7.2 Power
The project area (i.e. the center) is currently connected to the National electric grid (TANESCO). Therefore, the main sources of power for this project will be TANESCO supplemented by and 200kVA standby generator that is owned by the center. It uses diesel complete with auto-start and an electronic governor can provide around 10.4hours of runtime from the built-in day tank (340 litre tank and estimate 70% load with 32.6 litre consumption per hour). It provides a 3 Phase, 50Hz supply with Noise level (1m @ 70% load) of 78.6dBA and weigh of 1790kg.
2.8 WASTE MANAGEMENT PRACTICES IN THE SITE

2.8.1 Solid Waste Management
Currently management of solid waste is done through waste bins that are fitted at different locations within the center’s compound. These bins facilitate segregation of various categories of wastes. However, because of lack of incinerators both biodegradable and non-biodegradable wastes are disposed off in an open dump pit located within the center’s premises where they undergo a controlled burning (see figure 8 below).

Upgrading of the center and resulting increase service provision will increase waste generated at the center thereby posing more waste management challenges and hence the need for incinerator. In addition modern dustbins with lids will need to be provided for collection of general waste during construction and operation phase.

![Open pit used for burning of solid medical waste at Temeke Isolation center (Field Photo, March 2016)](image)

During operation phase of the ward and mortuary, medical waste will be double treated to prevent possibility of spread of EVD to the surrounding environments. Waste generated in Red and Green zones within the ward will be pre-treated using autoclave installed/present in each zone. No untreated wastes will be allowed to move from one zone to another to avoid cross contamination. Pretreated waste will be placed in the incinerator for final treatment. Waste generated in the mortuary will also be subject to pre-treatment in the autoclave before final treatment in the incinerator. Appropriate PPEs will be used during handling wastes.

2.8.2 Wastewater Management
The current wastewater management practice at the center is through the Waste Stabilization Ponds (WSP). Waste from the main hospital compound (about 0.2.km East) is channeled through the constructed underground system to the Waste Stabilization Ponds located adjacent to the
The functionality and effectiveness of existing WSP is however questionable as it is unclear of the final discharging point of the effluents from the ponds.

2.9 PROJECT ACTIVITIES
The activities for upgrading the Ebola treatment center will be performed according to conventional engineering scheduling, procedures and practices. The below description of the proposed works pertains to the construction of such building and other supporting infrastructures including septic tank, storm-water drainage etc.

2.9.1 Mobilization Phase
This initial phase of project implementation will commence when all necessary permits and preparatory processes have been successfully completed. Mobilization phase will involve deployment mainly in terms of recruitment of the labor force for construction, transportation of construction and working equipment as well as buying and transportation of construction materials. Construction materials including bricks, cement, steel poles, stones, sand, woods, wire gauze, water etc. will be sourced locally from suppliers in Temekte Municipality or from surrounding suppliers in Kariakoo.

Also at this phase preparation of campsite for construction crew and site clearance will be undertaken. The site clearance has the main aim of preparing the site for development and will include activities such as felling down existing exotic trees and clearing grasses as well as removal of all wastes which would result from site clearance.

2.9.2 Construction Phase
The proponent will begin with renovation of the existing Ebola ward followed by construction of fence around the proposed project site and provision of basic facilities like temporary toilet for workers. The actual construction phase will involve; excavation of the foundations and trenches, erection of structures and drainage, and landscaping. The trenches will be used for laying communication cables, water pipes to establish utility network. Excavators and other construction trucks will be used for clearing the area, transporting raw materials from source and disposal of overburden materials

Construction materials such as cement, sand, stone, aggregates, pavement, sanitary ware and steel will be procured locally while other material will be obtained outside Tanzania and this will be based on the specifications. Construction activities at the site will be carried out by a qualified and registered contractor. The contractor will be responsible for transportation of all construction materials and equipment from point source to the site in accordance to the regulatory requirements.

2.9.3 Operation Phase
Upon completion of the construction works operations will start without compromising the health, safety and welfare of neighbors since the center will be fenced against potential intrusions
and interferences by neighbors. The management of Temeke Hospital and the centers will establish Maintenance Unit, which will be responsible for the maintenance of infrastructures and technical services. Activities under this phase are as follows:

- Separation of the ward into two zones Green Zone (i.e. Safe) and Red Zone (i.e. High risk)
- Receiving suspect Ebola patients
- Separating of suspected Ebola patients
- Proving healthcare services to confirmed Ebola patients
- Waste management both solid and liquid wastes

2.9.3.1 Transportation of Ebola Suspect
Suspect will be transported using special ambulance. Before/during transporting suspected the following will be considered:

- Ensure ambulance personnel and receiving facility personnel have appropriate personal protective equipment (PPE) ensembles
- Make sure doffing and ambulance decontamination personnel an material are available
- Determine appropriate level of personnel to accompany patient during transfer
- Make sure the treatment center is ready for patient arrival
- Ensure appropriate person providing medical oversight is immediately available throughout the transport
- Conduct brief patient assessment to determine patient’s stability, “dry” or “wet” symptoms, and need for intervention before and/or during patient transport
- Report patient’s condition to the treatment center to facilitate their readiness to receive patient from transport agency immediately upon arrival

2.9.3.2 Arrival of Ebola Suspect
On arrival of Ebola suspect, the patient will use designated door to enter the Ebola ward. Upon arrival the following will be considered:

- The transport team confirm if the treatment center is ready receive patient before starting the process of removing the patient from the ambulance
- Park the ambulance to designated decontamination/disinfection station and disinfect the ambulance
- Ambulance transport team remove PPE under supervision of qualified personnel
- Trained personnel pack ambulance waste and transfer to the treatment point
- On arrival the staff at the treatment center should have prepared entry route and facilities e.g. stretcher
- Transfer the patient to the ward (suspect ward) and provide healthcare services to the patient
- After off-roading, ambulances carrying Ebola suspects or confirmed patients will washed at dedicated washing bays. Washing will be done by dedicated staff using appropriate PPE according to the WHO and Ebola guidelines.

2.9.3.3 Staff Movement in the Ebola Ward
The design of the ward allows staff entering to work to be in a safe “green zone” which is kept secure from the general public and from patients. After addressing PPEs staff flow is from suspect to confirmed patients areas to ensure less cross contamination between patients. On finishing a rotation staff removes PPE in the specifically designed removal areas with close supervision by the spray team. All contaminated single use PPE is left within the “red zone” bins while reusable equipment is placed in buckets of chlorine, boots are dipped and hands are washed.

2.9.3.4 Management of Solid Waste from the Ebola Ward
Red zone waste must remain and be destroyed within the red zone including all unused food and materials that have had patient contact are not amenable to cleaning. Green zone waste is generally managed in the green zone or nearby. All wastes (from Red zone and Green zone) will be pre-treated/decontaminated by autoclave, and subjected to secondary treatment through thermal oxidation using dedicated incinerator to prevent spread of infection. Autoclave will be installed in each zone to avoid cross contamination.

Primary Treatment of Infectious and Hazardous Waste
Autoclaves will be installed in the ward, and mortuary for the purpose of primary treatment (disinfection) of contaminated equipment and infectious wastes in both liquid and solid forms. The autoclave is the chemical free treatment method that will use steam to destroy microorganisms present in biomedical waste before disposal. Usually treated infectious wastes are disposed off in the same way as other general wastes. However for this project, treated waste will be subjected to incineration for further treatment in order to reduce health and safety risks related with handling EVD contaminated waste. Infectious medical autoclave will be of small size which uses electricity with sterilizing temperature ranging from 120-140°C.

2.9.3.5 Wastewater Management
WHO consider wastewater from Ebola treatment center to be of high risk, therefore recommends not to be released in public sewer. The upgraded Ebola treatment center will use septic tank for treatment of wastewater generated from the facilities. Chlorine i.e.0.5% will used for clearing the ward, mortuary, ambulance and reusable equipment. Hence it is unlikely that wastewater from the facility will be contaminated with EVD. The septic tank and soak pit will be sealed and with
adequate size to accommodate wastewater generated, particularly, when the center is operating at full capacity.

According to WHO recommendation septic tank should be maintained of less than two-third full to safety reasons. Therefore, before emptying the tank the analysis will be performed to establish the status, sludge with be dehydrated and/or disinfected before being disposed in the special pit.

2.9.4 Decommissioning Phase
The Ebola Treatment Center at Temeke hospital would exist for long time as long as regular preventive maintenance and rehabilitation will be done. Major rehabilitation of the building can involve use of additional land and construction of buildings and installation of machines respectively. Alternatively the government through the proponent may decide to develop a completely new treatment center at the same or new site.
3.0 RELEVANT POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Policy, legal and administrative frameworks are the basis of Environmental Impact Assessment (EIA). A policy framework is required to provide broad guidelines on areas of focus in undertaking environmental management activities in the sector. A legal and regulatory framework is essential for providing mandate, allocating specific responsibility and accountability to key factors and stakeholders, and also prescribes and enforces specific operating environmental procedures and standards.

Policies and legislations in Tanzania set out the legal and regulatory relevant to the proposed upgrading of Ebola treatment center project. Key legislations governing the conduct of EIA in Tanzania are the Environmental Management Act, 2004 and its Environmental Impact Assessment and Audit Regulations of 2005. Operationalization of the environmental regulations mentioned above is mainly vested on two public institutions, the National Environment Management Council (NEMC) and the Division of Environment (DoE) under the office of the Vice President (VPO). The NEMC undertakes enforcement, compliance, and review of environmental impact statements and environmental audits whereas the DoE provides the policy formulations and technical back-up and execute the overall mandate for environmental management in the country.

The EIA certificate is issued by the minister responsible for environment. There is good number of policies and pieces of legislation on environmental management in Tanzania, the relevant ones to this project are briefly discussed below.

3.1 POLICIES

The following are relevant sectoral and cross–sectoral policies which provide directives on how projects should be implemented in relation to concerned environmental and socio-economic settings. The project proponent will consult these policies in the course of designing and implementing the proposed project activities.

3.1.1 The National Environmental Policy (1997)

The environmental policy document seeks to provide the framework for making the fundamental changes that are needed to bring consideration of the environment into the mainstream of the decision making processes in the country.

The National Environmental Policy, 1997 stresses that for a framework law to be effective, environmental standards and procedures have to be in place. For example, Chapter 4 of the policy (Instruments for Environmental; Policy), Section 61, states, “As part of the (National Environmental Policy) strategy in the implementation of the National Environmental Guidelines, specific criteria for EIA conduct will be formulated.”
The National Environmental Policy as a national framework for environmental management emphasized that the construction sector shall focus on the following environmental objectives:

- Ensuring sustainability, security and the equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.
- To prevent and control degradation of land, water, vegetation and air which constitute our life support system.
- To conserve and enhance our natural and man-made heritage, including the biological diversity of the unique ecosystem of Tanzania.
- To improve the condition and productivity of degraded areas including rural and urban settlement in order that all Tanzanians may live in safe, healthful, productive and aesthetically pleasing surroundings.
- To raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in the environmental action.
- To promote international co-operation on the environment and expand our participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programs, including implementation of treaties.

The NEP advocates the adoption of Environmental Impact Assessment (EIA) as a tool for screening development projects, which are likely to cause adverse environmental impacts.

3.1.2 The Tanzania Development Vision (2025)

The National Vision 2025 foresees the alleviation of widespread poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development. The thrust of these objectives is to attain a sustainable development of the people. Construction of the Ebola center will contribute towards realization of the Vision’s objectives.

3.1.3 The National Health Policy (2003)

National health policy aim at enhancing health of Tanzanian through providing direction towards improvement and sustainability of the health status, by reducing disability, morbidity and mortality and raising life expectancy. One of the main objective of this policy is to ensure that health services are available and accessible to all people wherever they are in the country, whether in urban and rural areas. The policy encourages safe basic hygienic practices in workplaces, promote sound use of water, promotes construction of latrines and their use,
encourage maintenance of clean environment; working environment which are conducive to satisfactory work performance. The client will observe this.


The National Land Policy advocates the protection of land resources from degradation for sustainable development. Among other things the policy requires that project development should take due consideration the land capability, ensures proper management of the land to prevent erosion, contamination and other forms of degradation. Environmental Impact Assessment for this project is intended to identify if there is potential for the adverse impact and to propose means for mitigating them.

3.1.5 The National Poverty Eradication Strategy (2000)

The strategy is viewed as an instrument for channeling national efforts towards broadly agreed objectives and specific inputs and outputs. The poverty reduction strategy is to large extent, an integral part of ongoing macro-economic and structural reforms. Achieving the target of accelerated growth will require significant efforts by different stakeholders to enhance productivity and increase investment in both human and physical capital.

3.1.6 The National Policy on HIV/AIDS (2001)

One of the major objectives of the policy is to strengthen the role of all the sectors, public, private, NGOs, faith groups, CBOs and other specific groups to ensure that all stakeholders are actively involved in HIV/AIDS work and to provide a framework for coordination and collaboration. The policy recognizes that HIV infection shall not be grounds for discrimination in relation to education, employment, health and any other social services. Pre-employment HIV screening shall not be required.

For persons already employed, HIV/AIDS screening, whether direct or indirect, shall not be required. HIV infection alone does not limit fitness to work or provide grounds for termination. HIV/AIDS patients shall be entitled to the social welfare benefits like other patients among the employees. HIV/AIDS information and education targeting the behavior and attitudes of employees and employers alike shall be part of HIV/AIDS intervention in the workplace. Therefore, both contractor and operator of the proposed undertaking shall abide to this policy.

3.1.7 The National Employment Policy (1997)

The policy promotes employment mainly of Tanzania Nationals as referred to the section 10 of this policy, which lays down strategies for promoting employment. Section 10.1 of this policy lays down strategies for promoting employment and section 10.1 is particularly focusing on industry and trade sectors. Section 10.6 deals with employment of special groups i.e. women,
youth, persons with disabilities. Furthermore section 10.8 of the policy deals with the tendencies of projects to employ expatriates even where there are equally competent nationals. MHCGEC will consider the directions of this policy.

3.1.8 The National Construction Policy (2003)

The construction project such as upgrading of Ebola treatment center is among key areas embraced by the construction policy. Among the major objectives of the policy, which support sustainable construction sector include: to promote application of cost effective and innovative technologies and practices to support socio-economic development activities such as water supply, sanitation, shelter delivery and income generating activities and to ensure application of practices, technologies and products which are not harmful to both the environment and human health. This project is in-line with this policy as ultra-modern technology shall be used during construction and operation of the proposed undertakings.

3.1.9 The National Water Policy (2002)

The overall objective of this policy is to develop a comprehensive framework for the sustainable management of the water resources in the country. This framework promotes the optimal, sustainable and equitable development and use of water resources for the benefit of all Tanzanians, based on a clear set of guiding principles.

The policy provides for beneficiaries participation in water supply schemes and addresses cross-sectoral interests in water, watershed management and integrated and participatory approaches for water resources planning, development and management. The policy provides a shift of Government roles from service provider to that of coordination, policy and guidelines formulation, and regulation. Public consultations conducted for the cause of the EIA for this project brought stakeholder participation in line with the policy objectives. The TMC has to observe careful use of water by putting in place water conservation measures.

3.1.10 The Tanzania Mineral policy, 2009

The National Mineral Policy also addresses that the mining activities should be undertaken in a sustainable manner. Reclamation of lands after mining activities is recommended. As far as this project is concerned, mining activities is directed to quarrying activities for obtaining sand, stones and aggregates and therefore they should be done in sustainable manner as directed by the policy.

3.1.11 National Gender Policy (2002)

The key objective of this policy is to provide guidelines that will ensure that gender sensitive plans and strategies are developed in all sectors and institutions. While the policy aims at
establishing strategies to eradicate poverty, it puts emphasis on gender quality and equal opportunity of both men and women to participate in development undertakings and to value the role-played by each member of society. Client shall adopt the policy through the provision of equal opportunities to both men and women in upgrading of proposed center and related facilities within the Temeke Municipality.

3.2 PRINCIPLE LEGISLATIONS AND REGULATIONS

The following are relevant legislations and regulations, which provide directives on how projects should be implemented in relation to concerned environmental and socio-economic settings. The project proponent will consult these legislations and regulations in the course of designing and implementing the proposed project activities.

3.2.1 Legislations

3.2.1.1 The Environment Management Act, No. 20 of 2004

The Environmental Management Act (EMA) is a piece of legislation that forms an umbrella law on environmental management in Tanzania. Its enactment has repealed the National Environment Management Council Act. 19 of (1983) while providing for the continued existence of the National Environment Management Council (NEMC). Among the major purposes of the EMA are to provide the legal and institutional framework for sustainable management of the environment in Tanzania; to outline principles for management, impact and risk assessment, the prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement; to provide the basis for implementation of international instruments on the environment; to provide for implementation of the National Environmental Policy; to provide for establishment of the National Environmental Fund and to provide for other related matters.

Part III, Section 15(a) states that in matters pertaining to the environment, the Director of Environment shall coordinate various environment management activities being undertaken by other agencies to promote the integration of environment considerations into development policies, plans, programmes, strategies projects and undertake strategic environmental assessments with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable basis for the improvement of the quality of human life in Tanzania.

Part VI of the EMA deals with Environmental Impact Assessments (EIA) and other Assessments and directs that an EIA is mandatory for all development projects. Section 81(2) states that “An Environmental Impact Assessment study shall be carried out prior to the commencement or financing of a project or undertaking”, while Section 81(3) states “a permit or license for the
carrying out of any project or undertaking in accordance with any written law shall not entitle the proponent or developer to undertake or to cause to be undertaken a project or activity without an environmental impact assessment certificate issued under this Act”. The proposed upgrading of Ebola treatment center and related facilities at Temeke hospital will follow all the EIA and EMA, 2004 requirements.

3.2.1.2 The National Land Act, 1999

These laws declare all land in Tanzania to be “Public land” to be held by the state for public purposes. The Acts empower the President of the United Republic of Tanzania, to revoke the “Right of Occupancy” of any landholder for the “public/national interest” should the need arise. The laws also declare the value attached to land.

The law as amended in 2004 recognizes the role of land in economic and urban development. The law provides for technical procedures for preparing land use plans, detailed schemes and urban development conditions in conformity with land use plan and schemes. The LGA has the power to impose conditions on the development of any area according to the land-use planning approved by the Minister. This project conforms to this law because it has followed all development conditions provided.

3.2.1.3 Occupation Health and Safety Act No. 5 of 2003

This Act makes provisions for the safety; health and welfare of persons at work in factories and all other places of work. Also provides for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work. Relevant sections of the ordinance to the project activities include Part V on health and welfare provisions, which include provision of supply of clean and safe to workers, sanitary convenience, washing facilities and first aid facility. Section 50, which is dealing with fire prevention issues.

Section 15 gives powers to the Registrar of factories and workplace to enter any factory or workplace to perform his duties as provided by the Act. Section 16 requires that factories and workplace should register with Registrar of factories and workplaces before commencing operations. Part VI is dealing with special safety provisions for working places involving handling hazardous chemicals, hazardous processes or hazardous equipment. MHCGEC will observe these provisions for the entire lifecycle of the project.

3.2.1.4 The Water Resource Management Act, 2009

This is Act repealed the Water Utilization (Control and Regulation) Act (1974). The Act provides for institutional and legal framework for sustainable management and development of water resources; outlines principles for water resources management; s for prevention and
control of water pollution; and provides for participation of stakeholders and general public in implementation of the National Water Policy. Relevant provision of this act is that the water “Shall not be polluted with any matter derived from such use to such extent as to be likely to cause injury either directly or indirectly to public health to livestock, or fish, to crops, orchards or garden, which are irrigated by such water or to any product in the processing of which such water is used”.

According to section 39 (1) of this act, owner or occupier of land on which any activity or process is or was performed or undertaken, or any other situation exists which causes or has caused or is likely to cause pollution of a water source, shall take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. The project proponent will comply with the provisions of this act. This project follow the procedures for discharges to open environment and maintenance of water quality, which are provided by this act.

3.2.1.5 The Workers Compensation Act, 2008

The act aim to provide compensation to employees for disablement or death caused by or resulting from injuries or diseases sustained or contracted in the course of employment. The act also requires establishment of fund for administration and regulation of workers compensation and to provide for related matter. It applies to both workers in the private and public sector. For one to be compensated, the injury must either cause permanent incapacity or make the worker unable to earn full wages for at least three consecutive days.

The employer is obliged to pay compensation irrespective of the cause of accident. It does not matter whether the incapacity or death was due to recklessness of the worker. Where injury occurs, an employee is entitled to recover medical expenses and lost wages resulting from the disability, be it temporary or permanent. The law allows for compensation to defendants or personal representatives where the worker is dead. The MHCGEC respects the provisions of the Workers' Compensation Act and will therefore observe its requirements in addition to safety measures provided in this report.

3.2.1.6 The Contractors Registration (Amendments) Act No. 15 of 2008

The Contractors Registration Board (CRB) is a government autonomous regulatory body established to register all types of contractors and regulate their conduct for the purpose of protecting consumers of construction services in Tanzania. The body is governed by the Contractors Registration Act No. 17 of 1997 as amended by The Contractors Registration (Amendments) Act No. 15 of 2008. Among other things CRB is required to take legal action against unregistered contractors who undertake construction; installation, erection or alteration works; ensure that all construction sites are hoarded; and labour laws, occupational health and
safety regulations in the construction industry are adhered to. The MHCGEC shall therefore appoint a registered contractor and make sure that the provisions of the Act are adhered to.

3.2.1.7 The Engineers Registration (Amendment) Act, 2007

The Act provides restriction that no person other than a registered engineer shall engage in professional engineering work or services which includes professional service consultation, planning, designing or responsible supervision of construction or operation in connection with any public or privately owned public utilities, buildings, machines, equipment, processes works or projects where public interest and welfare, or the safeguarding of life, public health or property is concerned or involved, and that requires application of engineering principles and data. Furthermore, the Act stipulates that no person shall employ or continue to employ its professional engineer any person who is not a registered engineer. The client shall therefore observe the provisions of the Act when executing its activities.

3.2.1.8 The Urban Planning Act No. 8 of 2007

The law provides for the orderly and sustainable development of land in urban areas, to preserve and improve amenities; to provide for the grant of consent to develop land and powers of control over the use of land and to provide for other related matters. Under Section 3, among others the law seeks to improve level of the provision of infrastructure and social services for sustainable human settlement development. Therefore the proposed project is in line with the objectives of this law.

Section 58 of the Urban Planning Act provides for protection of buildings or group of buildings of special architectural or historic interest. The law states “The planning authority may compile a list of areas, buildings or group of buildings of special architectural or historic interest and may amend any list so compiled, such areas may include; buildings, group of buildings, areas of unique biodiversity; and rare species of trees and special trees”. Section 59 gives powers to the planning authority to grant permission for demolition of such buildings or otherwise powers to restrain any proposed demolition. This project is in line with this law as the proposed developments shall be constructed at the area where no relocation of people is needed and also there are no buildings of special architectural or historic interest.

3.2.1.9 The local Government (Urban Authorities) Act, 1982

The Act provides the procedures for establishment of urban authority and gives an opportunity to urban authority to establish procedures appropriate to local environment for the implementation development projects for purpose of increasing the implementation speed and to meet the intended targets.
The act requires urban authority to take measures for the conservation of natural resources; the prevention of soil erosion and the prohibition and control of cultivation. This provision is crucial to ensure that environment is protected in urban area where development project is being implemented. MHCGEC will observe these provisions during implementation of the project.

3.2.1.10 the Fire and Rescue Force Act, 2007

The Act establishes the national fire brigade for the Mainland Tanzania which shall be known as the Fire and Rescue Force. It also provides the general duties of the Force which are to prevent and minimize death rates, injury to the people, and damage to properties arising from fire, floods, earthquakes, road traffic accidents and other disasters. Section 10, gives the power to the Commissioner-General or any fireman or other person authorized by him in writing, to enter any premises at all reasonable hours for the purposes, among others, of obtaining information required for fire-fighting purposes with respect to the character of the premises, the availability of water supplies and the means of access to them, and other material circumstances; ascertaining whether or not there exists any fire hazard. The client will comply with the requirements of this Act throughout the life cycle of this project.

3.2.1.11 Public Health Act, 2009

An Act provide for the promotion, preservation and maintenance of public health with the view to ensuring the provision of comprehensive, functional and sustainable public health services to the general public and to provide for other related matters. Section 66 of the Act state that: (1) A building or premises shall not be erected without first submitting the plans, sections and specifications of the building site for scrutiny on compliance with public health requirements and approval from the Authority. (2) A building or premises or its part or any structure shall not be occupied until a certificate of occupancy has been granted. (3) Also the provisions of subsections (1) and (2) shall apply to the dwelling houses in houses erected in urban which have been recognized as such under the Squatter Upgrading Programme. Therefore, the proposed undertaking will abide to this Act.

3.2.1.12 The Local Government Law (Miscellaneous Amendment) Act, 2006

This act established the local governments and urban authorities with mandates to spearhead developments in districts and urban centers (for cities and municipalities) respectively. By this law, the authorities have mandates to formulate bylaws to enhance environmental management within their district or urban authorities. Therefore all environmental management by laws of Temeke Municipality shall be adhered to.
3.2.1.13 The HIV and AIDS (Prevention and Control) Act, 2008

The law provides for public education and programmes on HIV and AIDS. Section 8(1) of the law states that “The Ministry (Health), health practitioners, workers in the public and private sectors and NGOs shall for the purpose of providing HIV and AIDS education to the public, disseminate information regarding HIV and AIDS to the public”. Furthermore, Section 9 states “Every employer in consultation with the Ministry (Health) shall establish and coordinate a workplace programme on HIV and AIDS for employees under his control and such programmes shall include provision of gender responsive HIV and AIDS education...” This project shall abide to HIV/AIDS Act in the fight against the disease during all project phases.

3.2.1.14 Employment and Labour Relations Act No. 6 of 2004

The Act makes provisions for core labour rights; establishes basic employment standards, provides a framework for collective bargaining; and provides for the prevention and settlement of disputes and provides. Client through consultant shall ensure that the Contractor adheres to employment standards as provided for by the law.

3.2.1.15 The Water Supply and Sanitation Act No. 12 of 2009

This legislation provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services; provides for establishment of water supply and sanitation authorities as well as community owned water supply organizations; and provides for appointment for service providers. The main aim of this law is to ensure the right of every Tanzanian to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by taking into account among others protection and conservation of water resources and development and promotion of public health and sanitation; and protection of the interest of customers. The proposed project will lead to increased water demands and production of more wastewater and therefore its client will comply with the requirements of this Act.

3.2.1.16 National Land Use Planning Act, 2007

The act established a National Land Use Commission (NLUC) as the principal advisory organ of the government on all matters related to land use. Among other things, it recommends measures to ensure that the government policies, including those for development and conservation of land, take adequate account of their effects on land use, seek the advancement of scientific knowledge of changes in land use and encourage development of technology to prevent, or minimize adverse effects that endanger human man’s health and welfare. The act also specifies standards, norms and criteria.
3.2.1.17 Industrial and consumer chemicals management and control Act, 2003

The act establishes the technical committee which is responsible for advising the board and chief government chemist on the matters relating to the management and control of all industrial and consumer chemicals. The Act also gives the Chief Government Chemist the mandate to register, manage and control, the import, production, transportation, dealings, storage and disposal of chemicals in mainland Tanzania and to collect, maintain and publish related to it.

Section 11(5) of the Act required every chemical imported, distributed, manufactured, transported, sold, stored shall bear on the container thereof, a label with words "Approved by the Board", CAS and registration number, batch number and dates of manufacture, expiry, trade and chemical name, purity level of the substances and their identity or assay of percentage impurities, specification of active ingredient in terms of g/kg (grartis per kilograms) or %, tv/v (weight by volume), important physical chemical properties, Chemical Safety Cards, Material Safety Data Sheets where applicable instructions for appropriate storage compatibility and safety precautions. This project involve use of chemical mainly for disinfection, hence the MHCGEC will comply with the requirements of this Act, during procurement, transportation and storage.

3.2.1.18 the Health Laboratory Practitioners Act, 2007

The Act establishes Health Laboratory Practitioners' Council, which is responsible for registering, enrolling and licensing authority to persons eligible for registration, enrolment and licensing under this Act. Also the act describe responsibilities of the council which includes prescribing the ethics and code of conduct for health laboratory practitioners; regulate the standards and practice of the profession of health laboratory; evaluate and approve applications from qualified health laboratory practitioners and persons intending to be licensed; issue certificates of registration and enrolment to health laboratory practitioners. The client will ensure Temeke Ebola treatment center activities comply with requirements of this act.

3.2.1.19 the Health Laboratory Technologists Registration Act, 1997

The Act establishes Health Laboratory Technologists Council. Section 4(1) stipulates that the Council shall be the registering authority of all persons required to be registered under this Act. Among others the council is responsible for regulation of the standards of conduct and activities of health laboratory technologists; regulate standards and practice of the health laboratory profession; keep and maintain the register of all health laboratory technologists; issue to each registered health laboratory technologist a certificate of registration in the form of an extract from the appropriate register and which shall bear the seal of the Council. Section 9(1) describes the qualities or condition of health laboratory technologist to issued with a certificate from the council. MHCGEC will comply with the requirements of this Act.
3.2.1.20 The Tanzania Food, Drugs and cosmetics Act, 2003

Section 4 of the Act establishes the Tanzania Food and Drugs Authority or by the acronym "TFDA". Among others, the authority is responsible for regulation all matters relating to quality, and safety of food, drugs, herbal drugs, medical devices, poisons and cosmetics; regulate the importation, manufacture, labeling, marking or identification, storages promotion, sell and distribution of food, drugs, cosmetics, herbal drugs and medical devices or any materials or substances used in the manufacture of products regulated under this Act; approve and register products regulated under this Act, manufactured within or imported into, and intended for use in the United Republic; ensure that, clinical trials on drugs, medical devices and herbal drugs are being conducted in accordance with prescribed standards. Temeke Ebola Treatment Center will use various drugs in its operations. Therefore ministry will observe the requirements of this Act including procurement of registered drugs.

3.2.1.21 the Environmental Health Practitioners (Registration) Act, 2007

The Act provides for the establishment of the Council to regulate the conduct of and registration of Environmental Health Practitioners. The Council shall be the sole authority for registering Environmental Health Practitioners. The Act stipulates the functions of the council which includes to issue and cancel registration certificates; make, issue, promote and oversee adherence to a code of conduct and where necessary to exercise disciplinary measures. Section 12(1) provides the qualification of Environmental Health Practitioner i.e. undergone the course of study leading to the award of diploma or degree in environmental health from any accredited institution and has practical experience for a period of one year in any institution recognized by the Council; and any other qualifications recognized by the Council. The project will involve staff of different professionals, therefore MHCGECE will be taken into account the requirements of this Act recruitment of staff related to the professional of environmental health.

3.2.2 Regulations

3.2.2.1 EIA and Audit regulations, 2005.

First schedule of this regulation, lists construction of multi-storey building among of the types of projects requiring a mandatory Environmental Impact Assessment. Since such project is likely to have significant adverse environmental impacts, an in-depth study is required to determine the scale, extent and significance of the impacts and to identify appropriate mitigation measures.
Furthermore, the regulation specifically provide for procedures and guidelines for carrying out Environmental Impact Assessment in Tanzania. EIA review for this project has been carried out in accordance with these regulations.

3.2.2.2 Environmental (Registration of Environmental Experts) Regulations (2005)

Section 83 of the EMA (2004) stipulates that Environmental Impact Assessment shall be conducted by experts or firms of experts whose names and qualifications are registered as such by NEMC. The NEMC maintain a registry of EA and EIA experts. These regulations also set code of practice of the experts for which the Environmental Impact Assessment experts for this project subscribe. The client has complied with these regulations by contracting a registered expert to undertake EIA study.

3.2.2.3 The environmental Management (Air Quality Standards) Regulation, 2007

The regulations are made from the Environmental management Act Cap 191. The objective of the Air quality Standards Regulations are to set baseline parameters on air and emissions based on a number of practical considerations and acceptable limits; enforce minimum air quality standards prescribed by the National Environmental Standards Committee; help developers such as MHCGEC to keep abreast with environmentally friendly technologies; and ensure protection of human health and the environment from various sources.

3.2.2.4 The environmental Management (Water Quality Standards) Regulation, 2007

The objective of the Water Quality Standards Regulations are to protect human health and conservation of the environment; enforce minimum water quality standards prescribed by the National Environmental Standards Committee; enable the National Environmental Standards Committee to determine water usages for purposes of establishing environmental quality standards and value for each usage. Also the regulations ensure all discharges of pollutants take account the ability of the receiving waters to accommodate contaminants without detriment to the uses specified for the waters concerned. The client will ensure during construction and operation of the treatment center complies with the requirements of these regulations.

3.2.2.5 The Environmental Management (Soil quality standard) Regulations, 2007

The regulations set limits for soil contaminants in agriculture and habitat; enforce minimum soil quality standards prescribed by the National Environmental Standards Committee; prescribe measures designed to maintain, restore and enhance the sustainable productivity of the soil; prescribe minimum soil quality standards to maintain, restore and enhance the inherent productivity of the soil in the long term; enforce minimum soil standards prescribed by the National Environmental Standards Committee for such purposes as agricultural practices; ensure implementation of criteria and procedures prescribed by the National Environmental Standards
Committee for the measurement and determination of soil quality; and prescribe measures and guidelines for soil management. This project may pollute the soil, at both construction and operation phase, therefore the MHCGEC will ensure mitigation measures identified in this report are effectively implement to comply with these regulations.

3.2.2.6 The Environmental (Solid Waste Management) Regulations, 2009

These regulations provide guide for waste management in Tanzania. It requires waste disposal and management to be guided by Precautionary principle, Polluter pays principle and the producer extended responsibility principle. The duty of minimizing waste generation applies to any one owns premises or facility that generates waste. Disposal of hazardous waste such as corrosive, carcinogenic, flammable, persistent, toxic, explosive, and radioactive waste, in non-hazardous waste collection receptacles is prohibited. Also the regulations prohibit, among others, disposal of medical wastes (needle, syringe etc) unless the receptacle has been approved in accordance with these regulations. The regulations places responsibility of managing waste generated within the premises of an institution to be managed by the entire institution. Also require an institution to send waste management data of the preceding year to the local government authority before 31st January of every prevailing year. Temeke Ebola Treatment Center will generate solid waste ranging from biohazards to non-biomedical waste. The MHCGEC will implement the mitigations identified in this to protect the environment and compliance with these regulations.

3.3 WORLD BANK SAFEGUARDS POLICIES

World Bank is taking proactive measures to ensure that the credit provide to borrowing countries is not adversely impacting the environment and community. The Bank is guided by a comprehensive set of safeguards operational policies. Safeguard policies are the mechanism for integrating environment and social issues into decision making. It also provides a set of specialized tools to support development processes and sustainable outcomes. The proposed development will trigger the Operational Policy (OP.4.01) for Environmental Assessment.

OP 4.01 aim to ensure that proposed projects for World Bank financing are environmentally and social sound and sustainable. Thus promote positive impacts and avoid/mitigate negative impacts. This policy provides the framework for the screening of project, which enables identification of adverse environmental impacts early in the project cycle. The screening categorize projects into three categories i.e. category ‘A’ require full environmental Impact Assessment, category ‘B’-limited environmental impacts and require EIA while category ‘C’-have no adverse impacts no EIA required but can be done. Also the policy requires the involvement of stakeholders through consultation and disclosure for the report.
3.4 INTERNATIONAL CONVENTIONS

Tanzania has ratified several international agreements and conventions relating to the environment. Agreements of potential relevance for the Interconnector Project are briefly mentioned below.

3.4.1 Vienna Convention for the protection of the Ozone layer (1985)

Inter-governmental negotiations for an international agreement to phase out ozone depleting substances concluded in March 1985 with the adoption of this Convention to encourage intergovernmental co-operation on research, systematic observation of the ozone layer, monitoring of CFC production and the exchange of information.

3.4.2 The Basel Convention

The Convention was adopted in 189 and entered into force in 1992. The convention sets an ultimate objective for control trans-boundary movement of hazardous waste and its disposal. The convention strictly regulate trans-boundary movement of hazardous wastes and provide obligation to each country to ensure that such waste are managed and disposed in environmentally sound manager.

3.4.3 United Nations Framework Convention on Climate Change (1992)

The objective of UNFCCC is to stabilize the concentration of greenhouse gas (GHG) in the atmosphere, at a level that allows ecosystems to adapt naturally and protects food production and economic development. Article 4 commits parties to develop, periodically update, publish and make available national inventories of anthropogenic emissions of all greenhouse gases not controlled by the Montreal Protocol (by source) and inventories of their removal by sinks, using agreed methodologies. It commits parties to mitigate GHG as far as practicable.

3.4.4 Montreal Protocol on Substances that Deplete the Ozone Layer

Adopted in September 1987 and intended to allow the revision of phase out schedules on the basis of periodic scientific and technological assessments, the Protocol was adjusted to accelerate the phase out schedules and has since been amended to introduce other kinds of control measures and to add new controlled substances to the list.

3.4.5 ILO Safety Provisions (Building) Convention, 1937 (No. 62)

Convention entered into force in 1942, which is concerning Protection of Workers against Occupational Hazards in the Working Environment due to Air pollution, Noise and Vibration and any incident that my result into injuries. The convention requires all necessary personal
safety equipment to be available for the use of the persons employed on the site and be maintained in a condition suitable for immediate use. Also require the employee to use the safety equipment and employer should take measures to ensure appropriate use of safety equipment. During the construction and operation phases workers and people will be exposed to the work environment hazards. Safety of these workers should not be compromised.

3.5 RELEVANT NATIONAL PLANS/STRATEGIES

3.5.1 The Tanzania Development Vision (2025)

The National Vision 2025 foresees the alleviation of widespread poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development. The thrust of these objectives is to attain a sustainable development of the people. Construction of Ebola center will contribute towards realization of the Vision’s objectives.

3.5.2 The Tanzania Five-year Development Plan II-2016/17-2020/2021

The Second Five Year Development Plan (FYDP II) is meant to implement Vision 2025 in view of the new paradigm to move the country towards a middle-income country. The overall goal of FYDP II is to spur the country’s progress through industrialization with special attention to principles of sustainable development and Sustainable development goals. This framework recognizes Environmental sustainability as an underlying principle.

3.5 INSTITUTIONAL FRAMEWORK

The Tanzania’s EIA institutional framework gives different roles and responsibilities to all parties involved in the EIA process of any proposed development undertaking to which EIA is obligatory. Specifically Environmental Management Act cap 191 gives mandate to NEMC the following mandates: (i) to determine whether the proposed project should be subjected to EIA, (ii) approves consultant to undertake EIA study, (iii) invites public comments, and (iv) review EIA reports and advises the responsible minister to issue Environmental Certificate. Table 3.1 provides a highlight of institutions that have key role to play in the EIA process of the proposed upgrading of the Ebola treatment center at Temeke hospital.

Table 3.1: Key Institutions to the ESIA Process

<table>
<thead>
<tr>
<th>Level</th>
<th>Institution</th>
<th>Roles and Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>Vice President’s</td>
<td>➢ Advise Government on environmental matters</td>
</tr>
<tr>
<td>Level</td>
<td>Institution</td>
<td>Roles and Responsibility</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
</tbody>
</table>
| level | Office (Division of Environment) | ➢ Coordinate the implementation of the National Environmental Policy  
➢ Approval of EIS and issuing of certificates  
➢ Coordinate environmental management activities within the country |
|       | National Environment Management Council (NEMC) | ➢ Registration of project, screening and assigning the level of impact assessment  
➢ Review of scoping report and approval of terms of reference,  
➢ Review of EIS and recommendation to the government.  
➢ Monitoring the proposed measures  
➢ Carry out environmental auditing |
|       | Occupational Safety and Health Authority (OSHA) | ➢ to ensure creation and maintenance of ideal work environments which are free from occupational hazards that may cause injuries or illness to all employees in work environment  
➢ Promoting best occupational health and safety (OHS) practices in order to reduce accidents and occupational diseases, and ultimately achieve better productivity  
➢ To register workplace and ensure compliance with Occupational Health and Safety Act, 2003 through inspection of construction site annually |
|       | Ministry of Health, Community Development, Gender, Elderly and Children | ➢ Issuing policy guidance  
➢ Providing legal frame works  
➢ Carry out project environmental monitoring  
➢ Carry out project environmental auditing  
➢ Liaise with DoE and NEMC on matters involving the environment and shared responsibility  
➢ Ensure that environmental concerns are integrated into the ministry or departmental development planning and project implementation in a way which protects the environment  
➢ Oversee the preparation and implementation of all investment in the Ministry require EIA  
➢ Ensure compliance with the various regulations, guidelines and procedures issued by the Minister responsible for environment  
➢ Promote public awareness of environmental issues through |
<table>
<thead>
<tr>
<th>Level</th>
<th>Institution</th>
<th>Roles and Responsibility</th>
</tr>
</thead>
</table>
| Regional      | Dar es Salaam Regional Secretariat Office | - Oversee enforcement of laws and regulations  
- Advice on implementation of development project activities within the region  
- Oversee and advice on implementation of relevant national policies |
| Regional      | Dar es Salaam City Council                | - Oversee enforcement of laws and regulations  
- Advice on implementation of development project activities  
- Oversee and advice on implementation of relevant national policies  
- Plan and coordinate activities on community-based environmental management  
- Coordinate environmental matters at the city level |
| Local Governm | Dar es Salaam City Council                | - In-charge of all development within the municipality  
- Coordinator of all environmental matters at the municipal level.  
- Enforcement of laws and regulations  
- Provide baseline data on social and economic condition within the municipality  
- Baseline data on social and economic  
- Enforcement of laws and regulations |
|               | District Commissioner’s office            | - Primary points of contact for leadership and administration of the project  
- Also responsible for welfare and wellbeing of local project beneficiaries  
- Provide assistance and advice on the implementation of this project  
- Provide view on socio-economic and cultural value of the site and Ebola treatment center operations  
- Monitoring of the project to integrity of the environment and wellbeing of neighboring residents |
<p>|               | Mibulani Ward/street level leadership     | - Provide assistance and advice on the implementation of this project |
|               | around Ebola treatment center             | |</p>
<table>
<thead>
<tr>
<th>Level</th>
<th>Institution</th>
<th>Roles and Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>institutions around the Ebola treatment center</td>
<td>➢ Provide view on socio-economic and cultural value of the site and Ebola treatment center operations</td>
</tr>
</tbody>
</table>
4.0 BASELINE DATA AND INFORMATION

4.1 INTRODUCTION
This chapter provides relevant environmental, economic and social characteristics of the project core area (site specific), and areas in the immediate vicinity of the site for the proposed project as well as broad description of the area of influence. The level of details in the various sections depends on the interactions between the project activities and the particular environmental or socio-economic aspect. Information provided in this chapter will be superimposed on to the project concept and components for impact identification, evaluation and development of mitigation measures.

4.2 LOCATION AND ADMINISTRATIVE BOUNDARIES
The general area where the project will be sited is in Temeke Municipality at the Temeke Hospital’s Isolation Center for infection diseases in Temeke district. Temeke district is located in the south of Dar es Salaam city, borders Coastal Region in the South, Ilala Municipality in the North and West while in the East it stretches by the coastal line of the Indian Ocean. Its coordinates are 6°55'0" S and 39°25'0" E in DMS (Degrees Minutes Seconds) or -6.91667 and 39.4167 (in decimal degrees). Its UTM position is EN43 and its Joint Operation Graphics reference is SB37-11.

The Temeke Hospital’s Isolation Center for infection diseases where the project will be developed is partly developed with buildings and other infrastructure (water, electricity, waste management systems) for provision of services related to infectious diseases other than Ebola. Administratively, the project site is located in Temeke Municipality, Temeke district, Dar es Salaam, Tanzania.

Administratively, Temeke district is one of the three historical districts that make up the region of Dar es Salaam, which is headed by the Regional Commissioner. As recent as last year (September 2015) the government designated two new districts of Ubungo and Kigamboni. This will be a total of five districts for the Dar es Salaam region. Temeke district has a total area of 684 sq.km, 3 divisions, 30 wards and 171 streets (mitaa).

4.3 PHYSICAL CHARACTERISTICS

4.3.1 Climatic Conditions
Temeke lies in the Tropical coast belt of Dar es Salaam. It is influenced by two major climatic seasons namely rainfall and temperate seasons. Rainfall pattern is that of bimodal type with erratic conversational rains. The Monsoon rains occurring throughout the municipality between December and February, while the long heavy rains occur in the period from March to June. The amount of rainfall received ranges from 800 -1200 mm per annum. Humidity is around 96% in
the mornings and 67% in the afternoons. Temperature just like rainfall is also influenced by ocean currents. High temperatures prevail throughout the year ranging from 25°C during the period of June to August up to 35°C in the period of January to March.

4.3.3 Topography, Geology and Soils
The proposed project site is generally flat. Like the rest of Temeke districts, soil type at the project site is largely sandy and rainfall regimes, which determines land use patterns. Soil of the project area consists of well to moderately drained, light coloured sands and yellowish brown to yellowish red loams and clays.

4.3.5 Hydrology
There is no major river or seasonal stream in the general project area. The district has potential for groundwater resources due to the prevailing geological structure, which enhances infiltration and percolation and subsequent recharge.

4.4 BIOLOGICAL CHARACTERISTICS

4.4.1 Flora and Fauna
Main vegetation cover on the site is characterized by local grasses and few trees exotic trees of *Azadirachta indica* (refer fig 2 above). No lizards and birds were observed on the site at the time of visit. Frogs were heard closer to the WSP. Elsewhere in Temeke district, the main natural vegetation is coastal shrubs, miombo woodland, coastal swamps and mangrove trees.

4.5 SOCIO-ECONOMIC CHARACTERISTICS

4.5.1 Population Characteristics
According to 2012 census, there were 347,893 households in Temeke district with an average household size of 3.9. This translated into a total of 1,368,881 inhabitants, of whom 669,056 were male and 699,825 female with an estimated growth rate of 6.6% per year. The rapid population increase is influenced by both natural causes and immigration (birth rates and net immigration rates, respectively) due to business and employment opportunities. Population of wards of Temeke district is shown in Table 2 below.
Table 4.1: Population Distribution of Temeke District (Temeke, 2014)

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Ward/Shehia</th>
<th>Population (Number)</th>
<th>Average Household Size</th>
<th>Sex Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,368,881</td>
<td>669,056</td>
<td>699,825</td>
<td>3.9</td>
</tr>
<tr>
<td>1</td>
<td>Kigamboni</td>
<td>30,496</td>
<td>15,262</td>
<td>15,234</td>
</tr>
<tr>
<td>2</td>
<td>Vijibweni</td>
<td>29,010</td>
<td>14,221</td>
<td>14,789</td>
</tr>
<tr>
<td>3</td>
<td>Kibada</td>
<td>8,585</td>
<td>4,241</td>
<td>4,344</td>
</tr>
<tr>
<td>4</td>
<td>Kisarawe II</td>
<td>8,306</td>
<td>4,233</td>
<td>4,073</td>
</tr>
<tr>
<td>5</td>
<td>Somangila</td>
<td>19,283</td>
<td>9,734</td>
<td>9,549</td>
</tr>
<tr>
<td>6</td>
<td>Kimbiji</td>
<td>6,411</td>
<td>3,425</td>
<td>2,986</td>
</tr>
<tr>
<td>7</td>
<td>Mbagala</td>
<td>52,582</td>
<td>25,836</td>
<td>26,746</td>
</tr>
<tr>
<td>8</td>
<td>Chamazi</td>
<td>63,650</td>
<td>30,258</td>
<td>33,392</td>
</tr>
<tr>
<td>9</td>
<td>Yombo Vituka</td>
<td>76,999</td>
<td>37,638</td>
<td>39,361</td>
</tr>
<tr>
<td>10</td>
<td>Charambe</td>
<td>101,933</td>
<td>48,961</td>
<td>52,972</td>
</tr>
<tr>
<td>11</td>
<td>Toangoma</td>
<td>44,578</td>
<td>21,292</td>
<td>23,286</td>
</tr>
<tr>
<td>12</td>
<td>Miburani</td>
<td>44,290</td>
<td>21,667</td>
<td>22,623</td>
</tr>
<tr>
<td>13</td>
<td>Temeke</td>
<td>26,047</td>
<td>12,692</td>
<td>13,355</td>
</tr>
<tr>
<td>14</td>
<td>Mtoni</td>
<td>59,378</td>
<td>29,184</td>
<td>30,194</td>
</tr>
<tr>
<td>15</td>
<td>Keko</td>
<td>35,163</td>
<td>17,937</td>
<td>17,226</td>
</tr>
<tr>
<td>16</td>
<td>Kurasini</td>
<td>26,193</td>
<td>12,831</td>
<td>13,362</td>
</tr>
<tr>
<td>17</td>
<td>Azimio</td>
<td>76,832</td>
<td>37,462</td>
<td>39,370</td>
</tr>
<tr>
<td>18</td>
<td>Tandika</td>
<td>49,491</td>
<td>23,832</td>
<td>25,659</td>
</tr>
<tr>
<td>19</td>
<td>Sandali</td>
<td>52,660</td>
<td>26,050</td>
<td>26,610</td>
</tr>
<tr>
<td>20</td>
<td>Chang'ombe</td>
<td>19,302</td>
<td>9,401</td>
<td>9,901</td>
</tr>
<tr>
<td>21</td>
<td>Mbagala Kuu</td>
<td>74,774</td>
<td>36,146</td>
<td>38,628</td>
</tr>
<tr>
<td>22</td>
<td>Makangarawe</td>
<td>53,291</td>
<td>26,007</td>
<td>27,284</td>
</tr>
<tr>
<td>23</td>
<td>Pembammazi</td>
<td>9,672</td>
<td>4,904</td>
<td>4,768</td>
</tr>
<tr>
<td>24</td>
<td>Mjimwema</td>
<td>27,789</td>
<td>13,740</td>
<td>14,049</td>
</tr>
<tr>
<td>25</td>
<td>Tungi</td>
<td>23,380</td>
<td>11,439</td>
<td>11,941</td>
</tr>
<tr>
<td>26</td>
<td>Kijichi</td>
<td>69,195</td>
<td>33,764</td>
<td>35,431</td>
</tr>
<tr>
<td>27</td>
<td>Mianzini</td>
<td>100,649</td>
<td>48,737</td>
<td>51,912</td>
</tr>
<tr>
<td>28</td>
<td>Kiburugwa</td>
<td>78,911</td>
<td>38,833</td>
<td>40,078</td>
</tr>
<tr>
<td>29</td>
<td>Buza</td>
<td>55,082</td>
<td>26,761</td>
<td>28,321</td>
</tr>
<tr>
<td>30</td>
<td>Kilakala</td>
<td>44,949</td>
<td>22,568</td>
<td>22,381</td>
</tr>
</tbody>
</table>
4.5.4 Employment and Economic activities
It is estimated that 360,000 residents of Temeke Municipality are employed in both private and public sectors. Out of these, 95% are employed in the private sector while the rest 5% are employed in the public sector. A working force of 200,000 people is self-employed. The majority of the residents are involved in petty business, fisheries, livestock keeping and agriculture including horticulture. Only 3% of the working force is engaged in subsistence agriculture in the peri-urban areas. There are no big farms but small plots ranging from 2.5 to 6 acres. Others have small gardens around their houses in which various vegetables and root crops like cassava and sweet potatoes are grown for family food and the surplus for income generating (Temeke Municipal Council 2014).

4.5.4.2 Industries and Trade
Temeke district, being part of Dar es Salaam City cherishes productive sectors comprising of manufacturing industries, trade and transportations. As such 67% of Municipality economy is attributed to the trade and industry operations. There are 164 big and medium industries and 831 small industries involved in Industry production ranging from tools for production, processing, consumer goods and revenue raising commodities. There are nearly 40 major industries that are clustered in Chang’ombe Industrial Area which is situated in the northern part of the Municipality, while over 158 medium scale industries are located in Mbagala, Kurasini and other are due to be established in the newly designated industrial area at Vijibweni. There are also a good number of small-scale industries that are scattered in various parts of the municipality. Critical issue in terms of service production and support are not available and therefore difficult to ascertain right interventions. Other commercial/trade activities included shopping centers/shops/min-super markets, Bars, groceries and hotels.

4.5.5 Economic Infrastructure
4.5.5.1 Roads
Temeke district has road network of about 1046.30 km, comprised of trunk road (32 km), regional road (227 km), district road (759.2 km), feeder road (28.1 km). Of the total road network, 293.09 km is tarmac and or gravel and therefore passable throughout the year. The rest is earth roads. Trunk and regional roads are in good condition, although they still need some maintenance. According to Temeke district profile (2011) it is estimated that 50% of the District and feeder Roads are in good and fair condition and passable throughout the year. All trunk roads are of bitumen standard, regional and district roads are of gravel standard and feeder road are made of earth material. Temeke Municipal council is responsible for the operation and management of 787.3 km (75.5%) while a total of 259 km (24.8%) are managed by Tanzania roads agency (TANROADS).
4.5.5.2 Air Transport
Air transport needs of the Temeke district is served by the Julius Nyerere International Airport, which is located at about 33.6km away in Ilala district. Situated at an elevation of 196 feet above sea level, the JNIA has three passenger terminals and serves both as the domestic and international hub offering connection all major destinations in Africa, Europe and the Middle East. With the present infrastructure the airport has the capacity to handle 1,500,000 passengers annually.

4.5.5.3 Telecommunications network
Telecommunication in the area is covered Tanzania Telecommunication Company Limited (TTCL). The company operates landlines telephone system and mobile phones. There are also a number of Cellular phones providers namely Tigo, Vodacom, Airtel, TTCL, and Zantel. The district also has access to all major Radio and TV stations including TBC, ITV, Channel ten, Star TV, Radio One, clouds FM etc.

4.5.5.4 Energy
Electricity is the main source of power for lighting, business and industry, which is generated, transmitted and supplied by a sole utility agent the Tanzania Electricity Supply Company Limited (TANESCO). According to TANESCO regional office in Temeke, there were a total of 90,748 connected customers in 2013 of which 90,493 were domestic connections while 255 were commercial connections. At this rate Temeke district recorded an annual total electricity demand of 70 MW in 2013. Besides electricity, Temeke residents, depend on other sources of energy including charcoal & firewood, kerosene, firewood, solar, Biogas etc. Fuel wood is a dominant source of energy for domestic purposes is the most important from of energy used for domestic purpose such as cooking. While disaggregated data has been obtained for fuel wood use in Temeke region, aggregate data from the 2012 Population and Housing Census reveals that 6.6 percent of all the households in Dar es Salaam Region were using firewood for cooking.

Wind is also used a potential of source of energy mainly the water sector where Temeke District has 49 wind mills used to pump water above the ground.

4.5.5.5 Sanitation
The district does not have centralized sewerage system; treatment of sewage is done at an individual institutions using on site disposal systems, particularly septic tanks and pit latrines. Similarly, very few households have septic tanks and the most common way of disposing human waste is through pit latrines.

4.5.6 Social Services Infrastructure

4.5.6.1 Health facilities
Accessibility to health facilities in the project area is very good. Temeke district has 6 hospitals (out of which 3 are government owned), 121 dispensaries (39 are owned by the government), 1
public owned and 7 private owned health centre, 1 maternity home and 1 autonomous RHC unit. Currently, RCH are rendered in 29 public dispensaries and 49 private owned dispensaries. In terms of number of population per health facility and doctors, the current level of health access translates into 1 health facility per 10,000 of the population and 1:4,074.1 in 2012.

In terms of HIV prevalence Temek district has a rate of 7 percent. However, significant efforts have been put in place ensuring that PCMTCT services is rendered in 66 facilities covering entire municipality offering RCH, offering counseling and testing, and 10 sites offer care and treatment services.

4.5.6.2 Water Supply
Provision of Water and Sanitation is responsibility of the DAWASCO with Ruvu being the main source of water. However, a large part of the population (i.e. over 90 percent) use water from boreholes. Under the current settings, the current water demand level is 78,827 cubic meters per day while the supply level is 64,638 cubic meters per day, which is equivalent to 82% of there requirements. Findings from some study at glance showed that 98% of households are within 30 minutes of a source of drinking water and 69% of the same are with safe water sources (pipes, bore holes, hand pumps, or protected wells), whereas 32% of households are with safe sanitation (flush to sewerage or septic tank, or covered pit latrine) and 74% are said to have improved waste disposal. Currently Temek Municipal Council has about 30 registered Water User Associations.

Also the Municipal has a total number of 48 Water Committees, which are in the process of upgrading to Water User Associations.

4.5.6.3 Solid Medical Waste Management
Solid waste generated in the district particularly in urban are disposed off in the dumping site or buried. Solid waste collection is carried out by both the district council, some private companies and community based groups. Transportation to dump site is done by using trucks. In Temek municipality there is functioning waste collection system but this system faces many challenges faced by other municipalities including lack of enough trucks for collection of waste, difficult in accessing households to collect waste, limited community awareness for proper waste management including sorting and segregation. Nevertheless, medical waste is collected and treated separately from other wastes. Incinerator is used for medical waste and other wastes.

4.5.6.4 Education and training
There are 73 pre-primary schools in Temek Municipal council. Out of these 58 are government owned, and 15 are privately owned. The total number of children in all schools is 2301 of whom 1134 are boys and 1167 are girls. Government schools have 1513 children of whom 750 are boys and 763 are girls. The private schools have 758 children of whom 384 are boys and 374 are girls.
In terms of primary education, there are 114 primary schools in Temeke Municipality with 3,719 streams and the total number of 170,477 pupils. Out of these pupils 84,371 are boys and 86,106 are girls. The government schools are 100 while private schools are 14. The number of pupils in government schools is 164,238 of whom 81,217 are boys and 83,021 are girls. The 14 private schools have 6,239 pupils of whom 3,154 are boys and 3,085 are girls.

4.5.6.5 Community Development
Temeke Municipality has several types of cooperatives. These include: Marketing cooperative societies, rural primary society, savings and credit societies (SACCOS), farmers cooperative societies and service providers which are registered according to the Cooperative Act No. 20 of 2003.
5.0 STAKEHOLDERS CONSULTATION

5.1 STAKEHOLDERS ANALYSIS

Stakeholders include all individuals, groups or organizations that might be affected or might affect (positively or negatively) the proposed project in one way or the other. They are found at both national and local levels and range from government authorities, private sector representatives and NGOs to local community members and stakeholder groups. Stakeholders of relevance to the proposed project are listed in Table 5.1.

The stakeholders are of different categories depending on their role and relevancy during various phases of the project cycle. One of the important groups of stakeholders is government authorities at various levels responsible for ensuring compliance and issuing policy guidance, permits, titles etc. Discussion through meetings and one-on-one interviews were the main approached to solicit stakeholders’ views/concerns.

The EIA study team explained the scope and nature of the project to allow the stakeholder understand the project and provide views. Notices inviting the public to provide comments regarding upgrading of the Temeke hospital’s Ebola treatment Center were published in newspaper (both Swahili and English) and placed in other strategic areas (appendix 5). The following emerged as key stakeholders for upgrading of the Temeke treatment center in Temeke Municipality:

5.1.1 The Project Proponent

- Ministry of Health Community Development Gender Elderly and Children (MHCGEC)

5.1.2 Government Ministries, Departments and Agencies

- Prime Minister - Regional Administration Local Government
- DAWASCO
- DAWASA
- TANESCO

5.1.3 Local Government Authorities

Regional Administration

- Regional Administrative Secretary
5.2 PROJECT ACCEPTANCE

Consultations with stakeholders were carried out to determine socio-economic aspirations of the locals and also assess their perception about the proposed upgrading of the Temeke treatment center. Generally consultation with local stakeholders indicated that they view the proposed project as a positive opportunity that might create employment to locals and enhance medical services in the region and the country in general.

In addition, participants were convinced that the project would not pose irreversible negative impacts on the environment or community in the foreseeable future. Immediate threats of the proposed project to the nearby Communities were identified as dust pollution, noise, risk of spread of infectious diseases, and poor handling of medical waste.

5.3 STAKEHOLDERS’ CONCERNS

This section summarizes the issues that were identified during the scoping process. The issues generally refer to the relationship between project actions and environmental (natural, cultural, and socio-economic) resources.

Through stakeholders consultation’s meetings and interviews a number of key issues and concerns were identified, which were considered in this study (See appendix 3). Based on the raised issues/concerns, an issue analysis was carried out and categorized by sector as follows:

5.3.1 Environmental and Safety Issues

5.3.1.1 Management of Waste

Stakeholder noted that the proposed project will generate a substantial amount of solid waste including medical waste. If medical waste is not properly handled could result in spread of infectious diseases to staff and residents in neighbouring areas. Also could result into pollution of the environment due to both general, medical and hazardous waste. Therefore proper waste management should be planned and implemented.
5.3.1.2 Dust Generation

Dust generation during construction was another concern of stakeholders. It likely the construction activity will generate substantial amount of dust. The dust generated would pollute nearby areas and could result into effects on the respiratory system. Therefore the contractor should use water for controlling dust.

5.3.1.3 Wastewater Treatment

Another concern of stakeholders is generation of wastewater due to increase operation of the canter and in particular possibility of increased risks of infection with dangerous diseases such as Ebola. The project should development and implement effective and efficient wastewater treatment system to avoid contamination of the environment.

5.3.1.4 Loss of Vegetation

Stakeholders highlighted that the proposed project site is currently occupied by old trees and grasses. It obvious the contracto will clear the site before construction starts. In addition to all the other ecological functions that these trees play, stakeholders, particular staff benefit from shade and wind break services from these trees. Hence concern from stakeholders that these services will be lost when these trees are cleared during construction.

5.3.2 Social issues

5.3.2.1 Improvement of surveillance, testing and diagnosis capacity of the region

Stakeholders noted that the project will support both the National and Dar es Salaam regional administration ability to take timely action to combat spread of infectious and dangerous diseases such through early detection and subsequent containment of disease through proper isolation and management of detected cases. Hence, stakeholders commented that this will in turn, enhance wellbeing, happiness and productivity of Dar es Salaam residents and the national at large.

5.3.2.2 Spread of Infectious Diseases

Risk of spread of infection diseases to neighboring areas if standard isolation and treatment procedures and best practices will not be practiced. It is important for workers in this Ebola treatment center to observe professionalism.
5.3.2.3 Employment

Stakeholders expected the project to create employment in health sector and the public in general. Employment will improve financial capacity of employees that will have positive impact on their livelihood.

5.3.2.4 Boosting Economy of the Area

Stakeholders also feel that the project will increase demand of goods/products to be supplied during construction phase. This will create an opportunity for local suppliers and vendors (mama Ntilie) that will improve the economy in the area. Furthermore, stakeholders noted that TANESCO will benefit direct with the project as will it will depend primarily on TANESCO’s supplied electricity.

5.3.2.5 Spread of HIV/AIDS

Stakeholders warned that if construction activities will take long time, it is likely the risk of increasing new HIV/AIDS infections will increase. Therefore they proposed the client to consider finishing construction in short period and provide HIV/AIDS education in the project area will reduce the risk of new infections.

5.3.3 Technical, Safety and Health Issues

5.3.3.1 Control of Access

Stakeholders recommended that there should be a control to people visiting the treatment center during operation phase and access of unauthorized people should be restricted to control spread of EVD to neighbouring areas.

5.3.3.2 Provision of PPE

Ebola treatment center operation involves a number of safety hazards. To protect Ebola centre’s experts from infection and any injury, stakeholders recommended relevant Personal Protective Equipment should be provide and used properly by relevant employees.

5.3.3.3 Safety to Pedestrians

Stakeholders recommended that during construction occupational health and safety hazards to workers, neighbouring residents and pedestrians should be minimized though compliance with national and international standards e.g. fencing construction site, use of PPEs, etc.
5.4 ADDRESSING STAKEHOLDERS’ CONCERNS

The EIA report identified main concerns and issues raised by different stakeholders. As much as possible measures to ameliorate these main concerns and issues of different stakeholders are proposed in the EIS report. Various sections have addressed these issues as shown in the table 5.1 below:

Table 5.1: Response to Stakeholders’ Concerns

<table>
<thead>
<tr>
<th>Issue Raised by Stakeholders</th>
<th>Section for Proposed Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Waste</td>
<td>7.3.1, 7.3.2</td>
</tr>
<tr>
<td>Dust emission</td>
<td>7.2.4</td>
</tr>
<tr>
<td>Wastewater treatment</td>
<td>7.3.3</td>
</tr>
<tr>
<td>Loss of vegetation</td>
<td>7.2.1</td>
</tr>
<tr>
<td>Capacity enhancement and Improvement in testing and diagnosis services</td>
<td>6.3.7</td>
</tr>
<tr>
<td>Spread of infectious diseases</td>
<td>6.3.4, 7.3.4</td>
</tr>
<tr>
<td>Employment</td>
<td>6.2.8, 6.2.9</td>
</tr>
<tr>
<td>Boosting economy of the area</td>
<td></td>
</tr>
<tr>
<td>Spread of HIV/AIDS</td>
<td>6.2.6, 7.2.5</td>
</tr>
<tr>
<td>Control access</td>
<td>7.2.4</td>
</tr>
<tr>
<td>Provision of PPE</td>
<td></td>
</tr>
<tr>
<td>Safety to workers and pedestrians</td>
<td>7.2.4</td>
</tr>
</tbody>
</table>
6. ASSESSMENT OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES

6.1 ASSESSMENT METHODOLOGY

This chapter presents some of the known foreseeable impacts of the project, which were identified during impact assessment study. Based on the areas covered by the project the impacts on the environment and human health were identified.

The team members conducted literature reviews of available information related to the site conditions and with respect to similar Ebola treatment center operations prior visiting the site. The study team visited the site in order to see the existing situation in the field in relation to Ebola treatment center upgrading activities and operations.

The team spent the time on site gathering information through field studies, including the gathering of samples for identification. The combined site visit by the study team assisted in integration of ideas and findings between the specialists. The team undertook a social survey through conducting interviews with a broad spectrum of community members and other stakeholders. The role of each specialist was to collect sufficient data to assess the environmental impacts. In order to achieve this, the EIA team assessed the environment as it existed at project site and secondary data from published and unpublished sources.

6.1.1 Environmental impact rating scale

To ensure a direct comparison between various EIA studies, a standard assessment methodology was used to assess the significance (the importance of the impact in the overall context of the affected system) of the identified impacts. The criteria that were considered in the determination of the impact significance are:

- Severity/Benefit: the importance of the impact from a purely technical perspective;
- Spatial scale: extent or magnitude of the impact (the area that will be affected by the impact);
- Temporal scale: how long the impact will be felt;
- Degree of certainty: the degree of confidence in the prediction;
- Likelihood: an indication of the risk or chance of an impact taking place;

6.1.2 Significance Rating

Significance is an indication of the overall importance of the impact taking into account all the above-mentioned assessment criteria. Significance was assessed in the relevant context, as an impact can be relevant to the ecological environment, the social environment or both.
By ensuring that all specialists adhered to the abovementioned objective criteria, subjectivity was reduced as far as possible. There is, however, always an element of judgment that cannot be completely removed from the assessment of significance.

Significance of an impact is not always directly proportionate to severity, despite the fact that one would expect a direct relationship i.e. an impact with severe severity would be expected to be of high significance. However, this is not always the case. For example, changes to the geology might be severe, but the significance is regarded as low, since the change in the environment is considered by society as being unimportant.

Table 6.1: Significance of an impact

<table>
<thead>
<tr>
<th>Significance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>These impacts will usually result in long-term effects on the natural and/or social environment that will only be mitigated over very long periods of time.</td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td>These impacts will usually result in medium to long-term effects on the natural and/or social environment. These impacts are real but not substantial, and usually result in moderately severe effects or moderately beneficial effects.</td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td>These impacts will usually result in medium to short term effects on the natural and/or social environment. These impacts are considered to cause fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.</td>
</tr>
</tbody>
</table>

6.1.3 Potential Impacts

The upgrading and operation of Temeke Ebola treatment center is expected to have some beneficial (positive) and adverse (negative) impacts to the natural environment and the local community surrounding the project area. The impacts could be direct or indirect. The positive impacts shall be enhanced and negative impacts mitigated; the table below summarizes the identified potential impacts at different phases of the project.

6.2 MOBILIZATION/CONSTRUCTION PHASE

6.2.1 Vegetation Clearance/Loss of Biodiversity

Site clearance to give away for construction activities is usually associated with removal of vegetation cover and top soil. The potential impact is loss or disturbance of vegetation.
However, the project site has long been cleared off to give way to other land uses previously practiced on the area such as car workshop. Indigenous trees species have been removed, only and few exotic trees and grasses are in the site. Clearance in this regard will not result in the loss of vegetation/biodiversity of significance value. This impact is predicted to be negative, short-term, and of low significance.

### 6.2.2 Dust pollution

During earthworks for access road, installation of facilities and construction camp site. Also it is expected that a certain amount of dust will be generated by earth moving equipment during site clearance, transportation of construction material to the site, and during off-loading of materials. This situation will be worst during the dry season and during the afternoons when the trade winds are most prevalent. Given the location of the site, air borne particulates would pose a hazard to construction workers, other users of the compound and residents in the vicinity or downwind of the project site.

The substance, which will most significantly contribute to air pollution, will be Particulate Matter (PM10). PM10 may cause health hazards when inhaled in significant amounts and can also reduce the visibility. Most of those dust particles will come from basaltic dust particles which themselves come from the concrete rubbles and blocks. Tanzania Bureau of Standards (TBS) has published the maximum acceptable emission of particulate matter for industrial plant as 250mg/Nm3 - a value unlikely to be reached or exceeded during the construction phase. The extent of dust emissions will depend on: number of vehicles operating at a particular time; prevailing atmospheric conditions - wind speed/direction, temperature and rainfall; atmospheric pressure and duration of earthworks.

The occurrence of dust is periodic and short-term, lasting for the duration of the construction activity. The impact of dust pollution is therefore considered to be negative, short-term duration and of moderate significance.

### 6.2.3 Contamination of Land and Water Due to Spills

All sorts of motorized equipment, from generators to trucks, requiring fuel, lubrication and maintenance will be used on the construction site. Incidental spillage of fuels and oils may occur during operation of equipment as well as refueling and minor repairs or leaks from equipment, which are not well maintained. During heavy rainfall, surface runoffs will occur and might carry away the hydrocarbon wastes to nearby receiving body. These could directly contaminate the land or be washed into local surface water and groundwater systems and impair the quality of these receiving bodies. The potential impact associated
with contamination of land and water due to accidental spills is predicted to be negative, short term and of moderate significance.

6.2.4 Environmental Pollution due to Poor Management of Construction Waste

The projects will undoubtedly generate a reasonable amount of solid wastes on a less continuous basis. These wastes will comprise of used construction materials, paint, oil, packaging materials etc (table 6.2). Solid wastes if not well managed have a potential of causing disease outbreaks and contamination.

Also concrete and cement products are highly alkaline and their release into the environment can have an adverse effect on flora and fauna and on water quality in general. Impacts from concrete and cement products would result from the rinsing of equipment used to handle concrete and cement products. This impact is considered to be negative, short-term duration and of high significance

Table 6.2: Types, amounts and sources of wastes

<table>
<thead>
<tr>
<th>Waste</th>
<th>Types</th>
<th>Amount</th>
<th>Treatment/Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste</td>
<td>Remains of timber</td>
<td>80m³</td>
<td>Shall be sold to recyclers</td>
</tr>
<tr>
<td>(Degradable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food remains, cardboard</td>
<td>60kg/day (based on generation rate of 0.2 kg/day/person and 30 people will be at site)</td>
<td>To be collected in the large skip bucket at site ready to be disposed at designated dumpsite within the hospital compound.</td>
</tr>
<tr>
<td></td>
<td>and papers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid Waste</td>
<td>Demolition waste/ Spoil</td>
<td>100m³</td>
<td>This soil shall be stock piled along the foundation trenches. The soils shall be used to reinstatement site at the end of the project</td>
</tr>
<tr>
<td>(Non-degradable)</td>
<td>Soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scrap metals, drums</td>
<td>1.5m³</td>
<td>To be Sold to Recyclers</td>
</tr>
<tr>
<td></td>
<td>Tins, glasses and plastics</td>
<td>1m³</td>
<td>To be Sold to Recyclers</td>
</tr>
<tr>
<td>Liquid Waste</td>
<td>Sewage</td>
<td>1.2m³/day (Based on 30 people and 40l/c/d),</td>
<td>To be directed to the waste stabilization pond after primary treatment</td>
</tr>
<tr>
<td></td>
<td>Oils and</td>
<td>None</td>
<td>Service and</td>
</tr>
</tbody>
</table>
6.2.5 Health hazards associated with construction work

Safe working environment is normally assured when code of practices in the working place are instituted. Failure during the design to provide for and integrate health and safety (e.g. providing health and safety training to workers, putting in place emergency plan, providing first aid, providing proper personal protective gear and ensuring suitable working conditions) and ensuring there is a clear distribution of responsibilities and accountability for health and safety management activities to all employees at all levels may lead to accidents, injuries to workers, loss of lives and/or of property.

Construction activities are associated with activities that may cause risk of serious injuries and/or fatalities to workers including use of motored / sharp edged equipment’s, use of stepladder etc. Construction works use various noise-emitting heavy power equipment and tools. Also fire risk may exist at the base camp, offices, and storage and maintenance areas handling flammable materials. *This impact is considered to be negative, short term and of high significance.*

6.2.6 Spread of HIV/AIDS

An external workforce is likely to be brought into the area where employment positions cannot be filled locally. The creation of employment opportunities may also result in a population influx into the area in search of possible opportunities, contributing to existing ongoing population expansion in the project area. Construction team will face social integration challenges that need to be appropriately managed. An increase in exploitative sexual behavior and the associated risk of sexually transmitted diseases such as HIV/AIDS are likely to occur. *This impact is considered to be negative, short term and of high significance.*

6.2.8 Creation of Employment

It is widely known that construction projects create employment opportunities for locals within project area and professional outside the project area. Therefore, it is expected that the Ebola center will employ about 30 people during construction. Construction activities will create employment opportunities either directly or indirectly. For direct employment the use of local labour and women during construction phase shall be given high priority by
the contractor. The employees and their families will be depending directly or indirectly on the project for their living. The impact associated with creation of employment opportunities to locals is predicted to be positive, cumulative and short term but of high significance.

6.2.9 Increased Business Opportunities

An influx of population into the project area, including contracted construction teams, will increase the demand for goods and services. This will increase income-earning opportunities will also increase spending potential, providing opportunities for supply of such services. Therefore indirectly it will increase the overall wealth of the area. The potential impact associated with increase of business opportunities is predicted to be positive, cumulative, short term but of moderate significance.

6.3 OPERATION PHASE

6.3.1 Environmental Pollution Due to Poor Non-medical Waste Management

The project is expected to generate little amount of non-medical wastes particularly during the time of no EVD cases. The waste will be of liter, papers, plastic bottle, packaging materials etc. If these wastes are not well managed may result into pollution of the environment. This impact is considered to be negative, short-term duration and of medium significance.

6.3.2 Environmental Pollution due to Poor Management of Solid Biomedical Waste

The operation phase of the projects will undoubtedly generate a reasonable amount of solid wastes on continuous basis. Solid waste, particularly medical waste, if not well managed has a potential of causing disease outbreaks and contamination of the environment.

Biomedical waste is regarded as biohazards to human health and harmful to the environment. Medical waste such as sharps e.g. needles, glass slides, razor blades, infectious waste, pathological waste and other more carry a higher risk for Ebola infection and Injury. Exposure to hazardous medical waste results in important health risks to staff, patients (suspected) and the general public.

The impact of medical waste may occur mainly during transfer of waste from the point of generation to the treatment facility i.e. the autoclave, during undertaking treatment (disinfection) processes and when medical waste is mixed with and treated as non-
hazardous waste. If not well handled during undertaking these activities may result into spread of EVD to the environment. *This impact is considered to be negative, short-term duration and of high significance.*

### 6.3.3 Environmental Pollution due to Poor Management of Liquid Waste

Activities of the Ebola treatment center during operation phase will result into generation of liquid biomedical waste. Given the infectious nature of the services to be rendered by the center, Liquid biomedical wastes from the this center pose a serious threat to human health and the environment because of their ability to enter watersheds, pollute ground water, and drinking water when improperly handled and disposed.

Poor handling of liquid biomedical waste can result into introduction of EVD to the environment in mainly two ways. First is release of infectious liquid waste into septic system without primary treatment i.e. disinfection. Second is during generation, collection, transfer and disinfection processes of infectious liquid waste. A proper management of liquid biomedical waste is crucial to protect the integrity of the environment and meet national/international standards. *This impact is considered to be negative, long-term duration, cumulative and of high significance.*

### 6.3.4 Occupational health and safety hazards associated with Ebola Treatment Center Operations

Safe working environment is normally assured when code of practices in the working place are instituted. Failure during the design to provide for and integrate health and safety measures (e.g. providing health and safety training to workers, putting in place emergency plan, providing first aid, providing proper personal protective gear and ensuring suitable working conditions) and ensuring there is a clear distribution of responsibilities and accountability for health and safety management activities to all employees at all levels may lead to contact with people with EVD, accidents, injuries to workers, loss of lives and/or of property.

Most hazards encountered in the treatment center fall into three main categories i.e. chemical, biological, or physical.

#### 6.3.4.1 Biological hazards

- potential exposures to allergens, infectious waste, especially incinerator operator
- Working in a confined space and highly infectious disease
- Contact with spills of blood and other body fluid
• Contact with infected body during Post-mortem examinations
• Contact of infected body during moving from the ward to mortuary then to burial place

6.3.4.2 Chemical hazards

• Exposure to cleaning agents and disinfectants, drugs, anaesthetic gases, solvents, and compressed gases.

6.3.4.3 Physical hazards

• Include slips and falls from working in wet locations and the ergonomic hazards of lifting, pushing, pulling, and repetitive tasks.

The above hazards may also be related to the following: Improper use of personal protective equipment and inadequate supply of PPE and equipment; inadequate maintenance for medical equipment; working in a confined space and highly infectious disease. This impact is considered to be negative, long term duration, cumulative and of high significance.

6.3.5 Air pollution due to incineration of waste

As a requirement of WHO and ministry of Health the biomedical waste will be destroyed using thermal treatment i.e. incineration. Incineration of biomedical waste materials converts the waste into incinerator bottom ash, flue gases, particulates, and heat, which can in turn, can be used to generate electric power. Incineration of medical waste if carried out in an inappropriate facility could result into localized pollution of air. The main operational problems of incinerator included high emissions of smoke, unpleasant odors, and the generation of incompletely mineralized ash which can be difficult to handle.

The key emissions from medical Incinerator to the air includes Particulate Matter (PM), Carbon Monoxide (CO), Sulphur Dioxide (SO2), Hydrogen Chloride (HCl), Volatile Organic Carbons (VOCs), Polychlorinated Biphenyls, Antimony, Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, 2,3,7,8-tetrachlorodibenzo-p-dioxin, Chlorinated dibenzo-p-dioxins. Downwash of incinerator emissions has potential to degrade indoor air quality of nearby environment or offsite buildings. This impact is considered to be negative, medium-term of high significance.
6.3.6 Increased electricity and water consumption

The project shall consume a substantial amount of electricity due to the equipments that will be installed e.g. refrigerators, lights etc. Since electric energy in Tanzania is scarce resource and generated mainly through natural resources, namely water, natural gas, coal resources, diesel and others, increased use of electricity have adverse impacts on these natural resources base and their sustainability.

When operating full capacity the center is project to use about 10,000L (including water needed by staff) of water per day. Due to water supply in Dar es Salaam being not adequate to meet the demand, the project may increase competition of water use with other users. *This impact is considered to be negative, long-term of medium significance.*

6.3.7 Enhanced Services for Ebola Treatment

The Ebola treatment center will improve significantly the ability and capacity of the country respond to EVD outbreak. It will increase the country’s ability to contain, timely, EVD incidence before they spread to large public. This will prevent quick spread of EVD in the country. *This impact is considered to be Positive, long-term and high significance.*

6.4 DECOMMISSIONING PHASE

Temeke treatment center may exist for a very long period of time-up to 30 years if rehabilitation is done when needed. However, the operation may be terminated if the Tanzania Government/ MHCGEC decide so for one reason or the other, or change in technology may necessitate discontinuation of the center’s activities. If this happens environmental as well as social impacts may occur as follows:
6.4.1 Loss of Employment

The employee of Ebola Treatment Center and their family will be depending to large extent on the project for their living. Decommissioning of the project means they will lose their job and means of generating income, which may result into social stress/unrest to the community and may give rise to conflict with employer. *Loss of job is predicted to be negative, long-term duration and of high significance.*

6.4.2 Dust pollution from demolishing works

In the event that the center needs to be demolished, it may necessitate disposal of demolition waste. The air quality will be most affected during the demolition work with the emission of dust particles from machinery like excavators, electric grinders etc. The impact receptors are likely to include site workers, other users of the compound and nearby residents. The substance, which will most significantly contribute to air pollution, will be Particulate Matter (PM). PM may cause health hazards when inhaled in significant amounts. Most of dust particulate will come from dust particles originating from concrete rubbles and blocks. *The impact is considered to be negative, short-term duration and of high significance.*

6.4.3 Loss of aesthetics due to haphazard disposal of demolished waste

In permanent closure of the Temeke treatment center TMC may decide to demolish or abandon the structures or turn the building into other use. In case they decide to demolish the buildings, waste, dust and noise are expected from demolition works of the structure. Loss of aesthetics may result from the demolished waste remaining on site for a long time to the extent of becoming an eyesore. *These impact are considered to be negative, long term and of high significance.*

6.5 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND THEIR SIGNIFICANCE

Table 6.5 presents some of the known and foreseeable impacts of the project. They range from potential impacts of mobilization of materials/equipment, construction, operations and decommissioning.

**Table 6.3: Summary of Potential Environmental Impacts**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Potential Direct Impacts</th>
<th>Significance Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
<td>Potential Direct Impacts</td>
<td>Significance Value</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mobilization/Construction</td>
<td>Vegetation Clearance/Loss of Biodiversity</td>
<td>This impact is predicted to be negative, short-term, and of low significance</td>
</tr>
<tr>
<td></td>
<td>Dust pollution</td>
<td>Negative, short-term duration and of moderate significance</td>
</tr>
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<td></td>
<td>Noise pollution and vibration</td>
<td>Negative, short-term duration and of moderate significance</td>
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<tr>
<td></td>
<td>Contamination of Land and Water Due to Spills</td>
<td>Negative, short term and of moderate significance</td>
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<tr>
<td></td>
<td>Environmental Pollution due to Poor Management of Construction Waste</td>
<td>Negative, short-term duration and of high significance</td>
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<td></td>
<td>Health hazards associated with construction work</td>
<td>Negative, short term and of high significance</td>
</tr>
<tr>
<td></td>
<td>Spread of HIV/AIDS</td>
<td>Negative, short term and of high significance</td>
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<tr>
<td></td>
<td>Creation of Employment</td>
<td>Positive, cumulative and short term but of high significance</td>
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<tr>
<td></td>
<td>Increased Business Opportunities</td>
<td>Positive, cumulative, short term but of high significance</td>
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<td></td>
<td>Environmental Pollution due to Poor Management of Waste</td>
<td>Negative, short-term duration and of high significance</td>
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<tr>
<td></td>
<td>Environmental Pollution due to Poor Management Liquid Biomedical Waste</td>
<td>Negative, long-term duration, cumulative and of high significance</td>
</tr>
<tr>
<td></td>
<td>Occupational health and safety associated with Ebola Treatment Center operations</td>
<td>Negative, long term duration, cumulative and of high significance</td>
</tr>
<tr>
<td></td>
<td>Air pollution due to incineration of waste</td>
<td>Negative, medium-term of high significance</td>
</tr>
<tr>
<td></td>
<td>Increased electricity and water consumption</td>
<td>Negative, long-term of medium significance</td>
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<tr>
<td></td>
<td>Improved Services of Ebola treatment in the Country</td>
<td>Positive, long-term and high significance</td>
</tr>
<tr>
<td>Decommissioning</td>
<td>Loss of Employment</td>
<td>Negative, long-term duration and of high significance</td>
</tr>
<tr>
<td></td>
<td>Loss of aesthetics due to haphazard disposal of demolished waste</td>
<td>Negative, long term and of high significance</td>
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### Phase 6.6 CONSIDERATION OF ALTERNATIVE

Analysis of alternatives should consider other practicable strategies that will promote the elimination of negative environmental impacts identified. This section is a requirement of the Environment Impact Assessment and Audit Regulations, GN No.349/2005, and is critical in consideration of the ideal development with minimal environmental disturbance.

In analyzing the environmental impacts, there are usually two or more development alternatives to consider for each issue. The alternatives may encompass a wide range of consideration and can represent a choice between the construction and operation of a development and the non-development option. The option with the highest cost benefit factor, the most technically feasible and with least residual impact is identified as the preferred option. The following alternatives have been identified and have been discussed with project proponent as means of reducing environmental effects.

#### 6.6.1 The “No Project” Option

The assessment of this option requires a comparison between the alternative of proceeding with the proposed project with that of not proceeding with the proposed project. The proposed project represent an improvement in health social-wellbeing of all Tanzanians through improved capability for early detection, diagnosis and treatment of Ebola and other deadly infectious diseases contrary to the current situation whereby the country lack the much needed preparedness in terms of capacity (skills and infrastructure). This would lead not only to healthy and happy lives but also productive and prosperous lives. In addition the project stands to provide employment opportunities, although it has limited employment opportunities due to its nature. Potential negative impacts on the environment can be managed to acceptable levels. It is therefore, viewed that the No-Action alternative will be more detrimental to the Tanzanian citizens as compared to implementing the proposed upgrading of Ebola treatment center project.

#### 6.6.2 Alternatives based on Site location

The decision to implement the project on the proposed site and with above mentioned components’ was made on the basis of the nature of the site and the project. Operations of the Ebola Treatment Center are in sync with on-going operations in the area (e.g. operations of the existing center for other infectious disease namely cholera, measles and

<table>
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<tr>
<th>Phase</th>
<th>Potential Direct Impacts</th>
<th>Significance Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dust pollution from demolishing works</td>
<td>Negative, short-term duration and of high significance</td>
</tr>
</tbody>
</table>
other diseases). As the center is already isolated from the main hospital to avoid potential contamination and infection with other patients, this makes it the site more ideal both from management and geographical perspective. In addition, security in the site is good and the site is easily accessible from different parts of Dar es Salaam. Based on this the proposed site is the best alternative. **This Option is recommended.**
7. MITIGATION MEASURES

7.1 INTRODUCTION
The impacts that are most likely to affect the environment in the execution of the proposed project have been identified and analyzed in Chapter 6. Based on the analysis and hence classification of the most likely environmental impacts, this section provides a summary of mitigation measures of those impacts which are considered to be of moderate to high significance. The standards upon which the mitigation measures are targeted, the responsible entity and the associated mitigation costs are presented as part of the Environmental and Social Management Plan.

7.2 MOBILIZATION/CONSTRUCTION PHASE

7.2.1 Vegetation Clearance/Loss of Biodiversity
To mitigate the impact MHCGEC, TMC and contractor shall ensure that clearance of the site for construction purposes shall be kept to a minimum and areas that will not be impacted by the project shall not be disturbed. The Contractor shall clearly mark out the extent of clearing within the approved work-site and instruct all construction workers to restrict clearing to the marked areas and not to work outside defined work areas.

Areas that will be disturbed but not occupied by project components will be rehabilitated by seeding or planting ornamental trees. Planting of non-native or exotic will be minimized. The project will consult experts for advice and for potential flora stocks.

7.2.2 Contamination of land and water due to accidental spills
A number of mitigation and control measures will be implemented to reduce the potential for construction program activities to result in release of hydrocarbon products that may lead to surface water and/or groundwater contamination. These measures include:

- Oils, hydrocarbons and other hazardous materials will be stored in designated locations with specific measures to prevent leakage and release of their contents, including the siting of the storage area away from storm water drains and on an impermeable base with impermeable containment that has no outflow and is of adequate capacity to contain 110% of the contents;
- Plant and machinery will be kept away from surface waters and will have drip trays installed beneath oil tanks / engines / gearboxes / hydraulics which will be checked and emptied regularly;
• The contractor will prepare and implement spill response plan, spill kits and trained personnel. The contractor will be required to maintain records. The contractor will be required to remediate any spills of hazardous substances caused by the construction project.

7.2.3 Increased Sediment Loads due to Erosion

• Minimizing/avoiding establishment of borrow pits is an important measure that should be given a high priority. Any temporary borrow pits shall be rehabilitate and vegetation planted to restore at least to the original state. When practicable the contractor shall compact all areas with loose soil and excavate only area, which is immediately needed.

7.2.7 Environmental pollution from poor management of waste

• To mitigate the impacts of waste an efficient collection and disposal system based on the principles of reduction, re-use and recycling of materials, shall be instituted at the site. To ensure this requirement is adhered the following measures will be considered:
  • The contractor should document a mechanism/approach for handling hazardous waste such as oils, lubricants and non-combustible waste during bidding process.
  • Introduction of waste disposal bins, warning notices, “DOs & DONTs” etc should be posted at strategic points, throughout the construction site.
  • No, on site burial or open burning of solid waste shall be permitted.
  • Recyclable waste shall be segregated from other waste and sold/handled to recycling company.
  • The contractor should provide waste management awareness training for all workers.

7.2.4 Health hazards associated with construction works

To mitigate this impact, MHCGEC, TMC and contractor shall comply with relevant Tanzania legislations and regulations (OSHA, 2003) and World Bank operation policy on occupational health and safety requirements including the provision of Personal Protective Equipment’s (PPE), reasonable working hours and good working conditions and facilities. In addition the following mitigations will be considered:

• The contractor should develop and implement occupational Health and Safety (H&S) plan.
• The construction site will be fenced and access will be restricted to only authorized personnel.
• Speed of the construction trucks will be controlled and conspicuous signage will be placed in all necessary areas. A special entrance/exit gate to the compound/site will
be designated for construction trucks to use, which will avoid interference with existing operations.

7.2.5 Spread of HIV/AIDS

Effective measures will be taken to protect the health of construction workers as well as neighboring residents. The client will ensure the contractor prepare and implement HIV/AIDS awareness plan. Awareness to surrounding residents and construction workers will be raised using appropriate means of disseminating the message. Awareness on HIV/AIDS will be a part of induction for any new employee. When the need arises, project proponent and contractor will seek for professional assistance from organizations working in the field of public health and control of HIV/AIDS for instituting a health education and disease control programme at the workplace. The contractor will make free condoms available to all construction workers.

7.3 OPERATION PHASE

7.3.1 Environmental Pollution Due to Poor Non-medical Waste Management

The Temeke hospital will be responsible for efficient management of solid waste generated at Temeke treatment Center during its operation. The client will provide waste handling facilities that facilitate sorting (based on waste categories) with clear label such as waste bins and skips at convenient point(s) for temporarily holding solid waste generated. All general waste from the treatment center will be incinerated; no waste will be allowed to move outside the center unless pre-treated and authorized by the authority. The 3Rs principle i.e. Reduce, Reuse and Recycle, if feasible, will be applied.

7.3.2 Environmental Pollution Due to Poor Biomedical Solid Waste Management

Treatment of solid biomedical waste will involve two levels i.e. primary and secondary. At primary level the waste will be autoclaved for disinfection. Secondary treatment will involve incineration of disinfected waste. Specific measures for each type of waste are outlined below. During undertaking primary and secondary treatment the following procedures/measures will be utilized:

a) Personal Protective Equipment should be used when handling chemical or biomedical waste and individual handling this waste should be adequate trained
b) Medical waste will be collected in a suitable container e.g. waste-box and clearly labeled. Autoclave will be used to sterilize all infectious medical wastes. Sterilized
waste will be incinerated to avoid/reduce health risks related with handling infectious biomedical waste.
c) The container shall be leak resistant, impervious to moisture, of sufficient strength and sealed to prevent leakage
d) MHCCEC will ensure appropriate containers or bag holders are placed in all locations where particular categories of waste may be generated.
e) Instructions on waste separation and identification should be posted at each waste collection point to remind staff of the procedures.
f) The containers for medical waste should have secondary containment when temporarily stored before transportation or incineration
g) The client will record the amount of waste generated on daily or weekly basis in the log book. The record will include type of waste, quantity, route of disposal and handling person

It is important to have adequate operation control procedures (OCP) during operation phase of the treatment center to ensure protection of the environment and safety of employee and patients. The operation measures for management of different types/groups of medical waste are presented below:

7.3.2.1 Biological Hazards/ Pathological waste

a) Wastes should be segregated and mixing avoided, as unexpected reactions may occur.
b) Segregation should be maintained in the temporary storage area as well as during transporting to incinerator
c) The client should ensure the container is not leaking and there is no spillage on the exterior of the container
d) The client should segregate biological wastes as non-infectious, infectious and sharps and should be marked with the international infectious substance symbol.
e) Since EVD is highly infectious waste should be immediately pre-treated by autoclaving.
f) Cytotoxic waste should be collected in strong, leak-proof containers clearly labeled Cytotoxic waste
g) Any spillage should immediate cleaned with 0.5% chlorine and 

h) 7.3.2.2 Sharps

a) Sharps should all be collected together, the container should be puncture-proof (usually made of metal or high-density plastic) and fitted with cover.
b) Containers should be tamper-proof (difficult to open or break) and needles and syringes should be rendered unusable  
c) Where plastic or metal containers are unavailable, containers made of dense cardboard that meets requirement of WHO could be used 
d) No medical waste other than sharps should be deposited in sharps container

**7.3.2.3 Collection and Storage**

a) All waste will be immediately collected and pre-treated  
b) All containers or bags contain waste should be well labeled  
c) The client will designate temporary storage area, after wastes have been pre-treated, which is able to contain any leak and protect waste from exposure to sunlight and rain, should have an impermeable, hard-standing floor with good drainage; it should be easy to clean and disinfect.

**7.3.3. Environmental Pollution due to Liquid waste generation**

Poor management of liquid waste can result into the pollution of the environment. For this project wastewater will be managed using septic tank and soak system. To ensure the treatment of wastewater meets required quality standard the septic tank(s) will be designed and built to meet require standards and well maintained. Septic tank(s) will be sealed to avoid any risk of spread of EVD through this system.

Chlorine i.e.0.5% will used for clearing the ward, mortuary, ambulance and reusable equipment. Hence it is unlikely that wastewater from the facility will be contaminated with EVD. The septic tank and soak pit will be of adequate size to accommodate wastewater generated, particularly, when the center is operating at full capacity.

According to WHO recommendation septic tank should be maintained at less than two-third full for safety reasons. Therefore, before emptying the tank analysis will be performed to establish the status, sludge will be dehydrated and/or disinfected before being disposed in the special pit.

Although no substantial ground water pollution is expected, **monitoring well** will be established to monitor pollution of groundwater due to Ebola treatment center operations. Sample will be collected routine at specified interval (depending on design) and analysed in qualified laboratory. This will allow pollution concerns to be identified early and addressed. Results from monitoring well will reflect treatment performance of waste, and should, at least, meet TBS permissible limits for Municipal and Industrial Wastewaters and indicated in table 7.2 (Source TBS 2005).
Table 7.3: Permissible Limits of Municipal and Industrial Wastewater

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
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<tbody>
<tr>
<td>BOD5 at 20°C</td>
<td>30 mg/L</td>
</tr>
<tr>
<td>COD</td>
<td>60 mg/L</td>
</tr>
<tr>
<td>Total Suspended Solids(TSS)</td>
<td>100 mg/L</td>
</tr>
<tr>
<td>pH range</td>
<td>6.5-8.5</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>0.1 mg/L</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>0.005 mg/L</td>
</tr>
<tr>
<td>Total Coliform Organisms</td>
<td>10,000 counts/100mL</td>
</tr>
</tbody>
</table>

7.3.4 Occupational Health and Safety Hazards Associated with Ebola Treatment Center Operations

The Temeke Municipal Council will ensure the operation of Ebola treatment Center meets the requirements of Occupational Health and Safety Act, 2003 and its subsequent regulations. Also will ensure Best work Practices is adopted to reduce hazards. In addition, appropriate Personal Protective Equipment’s (PPE) to all relevant staff such as eye, face and foot protection as well as glove and protective clothing. Also the following mitigations will be used to mitigate this impact:

- MHCGEC should ensure an adequate and sustainable supply of water and electricity to the treatment centre
- Staff will be trained on proper use of PPE and limitation of its uses.
- Before starting operation of the center, specific hazard assessment will be conducted to identify hazards and select most appropriate type of PPE for protection.
- First Aid Kit will be provided and easily accessible, while fire extinguishers should installed in all strategic points.
- Emergency exits shall be clearly labeled (with illuminating sign) and not locked. Access to the treatment center will be restricted to authorized persons only. The same will apply to the incinerator during incinerating wastes.
- Ensure that a fence around Ebola treatment centre is constructed according to WHO guidelines to keep visitors at distance but allowing them to see through
- WHO guidelines to keep visitors at distance but allowing them to see through
- Thoroughly disinfect all environmental surfaces of Ebola ward treatment center using a 0.5% chlorine solution and wipes and rags
• Undertake regular monitoring of equipment performance, adequate use of PPE and carry out maintenance

7.3.4.1 Exposure to blood spills and other body liquids, secretions or excretions

• Remove blood spill, body liquid and secretion/excretion by covering with a rag or paper towel. Then wipe up and the waste, rags or towel put into a waste container designated as infectious waste for disposal.
• Using moistened cloths and wipes, clean the area with water and a detergent and then disinfect with a 0.5% chlorine solution (i.e., solution containing 5000 ppm available free chlorine) or another suitable disinfectant
• Use appropriate PPEs all the time dealing with such kind of spills

7.3.4.2 Cleaning the Treatment Center

A great care should be taken during cleaning of the Ebola ward and associated areas due to high risk of infection. The following are mitigations that should be used during undertaking this activity:

• Cleaners in the green zone should wear a disposable gown, heavy duty gloves, mask, face shield, and boots as a minimum
• Cleaners in the red zone should wear full PPE
• Cleaning will be carried out from “clean” areas to “dirty” areas
• Surfaces should be allowed to dry naturally, dry sweeping with bloom is not permitted

7.3.4.3 Post-mortem examinations

Post-mortem examination is high risk exercise if undertaken without great care. The exercise should be limited to essential evaluations and performed by trained personnel. During undertaking post-mortem examination the below outlined measures shall be strictly adhered to:

• Personnel involved in the examination should use PPE including eye protection, mask (a particulate respirator or a PAPR if performing internal autopsy), double gloves and disposable impermeable gowns.
• Specimens should be placed in clearly-labeled, non-breakable, leak-proof containers and delivered directly to designated specimen handling areas
• All external surfaces of specimen containers should be thoroughly disinfected prior to transport
• Tissue or body fluids for disposal should be carefully placed in clearly marked, sealed containers for incineration.
7.3.4.4 Movement (ward to Mortuary) and Burial of Infected corpses

Movement of and burial of human remains is one of the potential source of spreading EVD. The handling of human remains should be kept to a minimum and done by trained and well protected personnel. The following measures recommended by WHO should be applied when performing these activities:

- Person involved should wear PPE (impermeable gown, mask, eye protection and double gloves or heavy duty gloves) and rubber boots or closed puncture or fluid-resistant shoes and overshoes to handle the dead body of an EVD suspected or confirmed case
- Spray, wash or embalm the dead body is prohibited
- The body should be placed in a double bag, wipe over the surface of each body bag with a disinfectant (e.g., 0.5% chlorine solution) and seal and label with the indication of highly infectious material
- Remove PPE immediately after the procedure and perform hand hygiene immediately following PPE removal.
- After wrapping in sealed, leak-proof material (bag), the dead body should be immediately moved to the mortuary and placed inside a coffin if possible, and buried promptly.

7.3.5 Air pollution due to Incineration

The client will designate a person to operate the incinerator; this person should have adequate knowledge and well trained regarding operation of medical incinerator. Only Medical waste will be incinerated, while other wastes will be handled using general waste management system. Minimize or eliminate where possible the use of PVC containing materials at the treatment center especially where alternatives are available. This will reduce the quantity of dioxins produced during incineration. The TMC shall implement a mercury free purchasing policy in order to reduce mercury-containing waste. The incinerator should be kept in optimal working condition and serviced according to the manufacturers maintenance requirements.

To ensure concentration of dioxin is lower than 01ngTEQ/Nm3 the furnace will be designed to ensure the flue gas will stay in high temperature zone for at least 2 seconds.

7.3.5.1 Operation of Incinerator

a) Only medical wastes (non-radioactive) are authorized for burning in the incinerator at the center
b) Delivering waste to the incinerator without first making an appointment with incinerator operator is prohibited. Waste materials should never be abandoned at or near the incineration facility.

c) The incinerator must be fully heated up before wastes are added, requiring about 30 min or longer, depending on ambient temperature, type of fuel, fuel moisture content, etc.

d) Firewood must have a low moisture content (<15%)

e) Monitor the temperature, using quantitative temperature gauge or manual that require constant presence of operator during burning, in order to identify if suitable temperature have been reached.

f) Grey or black smoke indicates poor combustion and low temperatures

g) Dry fuels must be added every 5 – 10 min.

Waste Loading

a) Proper amount of fuel should be present (2/3 full) before adding wastes (experienced operator is required with different load types)

b) Very wet loads should be separated with drier material, and in extreme case supplemented by an extra increment of diesel/kerosene.

c) Mixing may be possible by separating waste types at the source in bags, labeling each, and loading in appropriate combination or sequence.

d) Restricted wastes should never be burned, including radioactive wastes, mercury thermometers, or explosive chemicals.

e) Measures may be necessary to hold wastes in position long enough to burn and to prevent them from failing through grate without being destroyed.

f) When the loading door is closed or opened rapidly, burning gases may come through the under air ports (air holes). The operator should open the door while standing at the front of the incinerator (to protect from blowback), wait a few seconds for any blowback to subside, and load from the side.

g) Sufficient time must be provided for the ‘fixed carbon’ in the waste bed to combust. A recommended period is 1 hr plus an additional 20 min for each hour of operation or typically 2 to 5 hr total (EPA 1990), but this will depend on many factors.

Safety

Safety considerations include prevention of infection, equipment safety (to prevent operator injury), and fire safety. Specific consideration includes:
a) Eye protection and a face mask should be worn when opening loading door or visually checking the unit to protect against glass shards from exploding ampoules and glass bottles.
b) Heavy-duty gloves and apron should be worn when handling.
c) Allow cool-down period of 3 to 5 hours before removing ash
d) Ash must not be handled by hand.
e) As mush be disposed appropriate i.e. to the landfill

Training

Proper operation of incinerators is necessary to minimize emissions and other risks. Only a trained and qualified operator should operate or supervise the incineration process. Without proper training and management support, incinerators cannot achieve proper treatment and acceptable emissions, and the resultant risks due to incineration can greatly increase and may be unacceptable. Training with regard to incinerator operations should focus on the following:

a) Training on general duties of the operator  
b) Training on operation and maintenance (facility operation manual could be important reference)

7.3.6 Increased electricity and water consumption

In order to ensure a proper use of electrical equipment, an automatic load limiting system will be installed. This system, complete with all required devices and interconnecting wiring automatically shuts down non-critical loads when the total power demand exceeds a predetermined limit. The lighting system will be designed to be compatible with the acoustical, thermal, spatial and aesthetic requirements of the Ebola center building. Design for optimum conservation of energy will include: use of effective economic luminaries; use of LED lamps; use of dimmers where appropriate; turning off of lights in areas when and where not needed; control of window brightness; use of daylight as much as practical and keeping of lighting fixtures and lamps clean and in good working conditions.

Also the emergency generator will be designed to operate under major disaster conditions i.e. when all services to the project are likely to be simultaneously interrupted. To complement these measures, it will be important to monitor energy use during the operation of Ebola treatment center and set targets for efficient energy use.

Demand side water use efficiency measures will be implemented to avoid unnecessary use of water. Only amount water required to meet sanitation and cleaning requirements of WHO will be used.
7.4 DECOMISSIONING PHASE

7.4.1 Loss of Employment

The major impact that will result when the project is decommissioned is loss of jobs. In order to minimize the impacts that may result from this event MHCGEC will ensure that all employees are members of the pension fund and their contributions are made on time. Also will prepare workers for forced retirement by providing skills for self-employment, wise investment and will provide relevant skills to workers through on-job training to make them marketable after decommission.

7.4.2 Loss of aesthetics due to haphazard disposal of demolished waste

The debris resulting from the demolition will be transported by a licensed waste transporter for dumping at an approved site or can be used as base material for new construction work. All the necessary health and safety measures will be implemented including provision of personal protective equipment such as, safety harnesses, helmets, gloves, respirators, safety shoes, coveralls, goggles, ear protectors and other relevant PPEs. Restoration of the affected land will involve the filling in of any open pits and grading the land to its natural contours, then planting appropriate tree species and cover vegetation to hold the soil in place and to prevent flooding.

7.4.3 Dust and noise pollution from demolishing works

A site waste management plan will be prepared by the contractor prior to commencement of demolition works. The contractor will use water to suppress excessive dust and whenever possible, water sprinklers shall be used. Also the contractor will provide protective gear (i.e. breathing masks) to workers working in dusty environment. Use of equipment designed with noise control elements will be adopted where necessary and demolition exercise will be limited at day time only. All workers operating in noisy areas or operating noisy equipment will be provided with relevant PPE e.g. earpieces to protect against extreme noise.

7.5 ENHANCEMENT OF POSITIVE SOCIO-ECONOMIC IMPACTS

7.5.1 Creation of Employment/Increase of Business Opportunities

It is expected that during construction and operation of Temeke Ebola Treatment Center a good number of people will be employed. Offering local people the opportunity for employment during the construction or of providing services such as supplying construction materials (e.g., timber, gravel) etc., will provide an additional income-
generating opportunity to a significant number of persons who may be affected in this targeted area.

Where skilled labour is required which cannot be obtained from locals, this will be a concern. This minor impact could be turned into a positive impact if the contractor is both encouraged to and committed to hiring local labour (especially vulnerable groups such as women), particularly when only semi-skilled or unskilled labour is required. It will be made clear during the tendering process for project that about 85% of local people will be employed from Temeke municipality in general. One way of promoting this would be for the Contractor to train local people to acquire the skills needed to carry out the work. In addition, the client will encourage the contractor, wherever possible, to procure materials from local sources as this will benefit local producers and suppliers.

7.5.2 Improved Treatment Services in the Country

To enhance this positive impact to the community living in the vicinity and area of influence, MHCGEC shall ensure efficient operation of the center and good security within the project area and area of influence. Quality assurance committee will be established to ensure the Ebola treatment center services meets the required standards. The client will provide adequate budget to enable the Center to be a leading Ebola Treatment Center in East Africa
8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 INTRODUCTION

The Environmental and Social Management Plan (ESMP) is presented below in Table 8.1. This ESMP for the proposed upgrading of the Ebola treatment center aims to address the associated impacts. As such, this is not a standalone ESMP but an addition to the existing plans. So, the proposed environmental management measures are intended to strengthen the current plan.

Based on the assessment undertaken as part of the EIA, a series of mitigation measures have been identified which aim to reduce and / or eliminate the predicted impacts of the project. It is important that these mitigation measures are appropriately applied to the project mobilization, construction and operation, and this management plan provides a strategic framework for their implementation. The Contractor shall implement components relevant to design, mobilization of materials and machines and actual construction. The estimated costs for implementing the mitigation measures are just indicative.

Additionally, the ESMP include an estimate of the costs of the measures so that the project proponent can budget the necessary funds. Appropriate bills of quantities should clearly give the actual figures. In any case the consultant used informed judgment to come up with these figures.

8.1.1 Purpose of the ESMP

The purpose of the ESMP is to describe the measures that should be implemented by the client during the implementation of the project to eliminate or reduce to acceptable levels key potential impacts related to project activities. The specific measures set out in the ESMP must be fully adhered to by all the project parties. In particular the project must strive to avoid significant impacts on the biophysical, socioeconomic, or health aspects during implementation. Avoidance through good detailed design of site-specific works and through detailed site-specific plans will be key to success in this area. Where impacts cannot be avoided they must be mitigated against using appropriate measures. The ESMP has been developed to:

- Bring the project to comply with applicable national environmental and social legal requirements, policies and procedures;
- Provide guidance on EHS issues as required by the World Bank Environmental and Social safeguards operation policy
8.1.2 Key Players in Implementing the ESMP

In order to ensure the sound development and effective implementation of the ESMP, it will be necessary to identify and define the responsibilities and authority of the various persons and organizations that will be involved in the project. The following entities will be involved on the implementation of this ESMP:

- Ministry of Health, Community development, Gender, Elderly and Children;
- Temeke Municipal Council
- Consultants;
- Contractor;

(a) Funding Institutions

The MHCGEC in collaboration with the Temeke Municipal Council has prepared an application for funding this project. The funding organization will have overarching responsibility to ensure that the Project is carried out to the highest environmental standards strictly in accordance with the EIA and the mitigation measures set out therein.

(b) MHCGEC

The Temeke Treatment Center will operate under the direct supervision of the ministry. Therefore, the responsibility for ensuring that mitigation measures specified in this ESMP and the contract documents are implemented will lie with the Ministry’s guideline or policy. The environmental monitoring staff from the ministry and if necessary, representatives from NEMC will undertake monitoring during construction and operation phases of the project.

(c) Environmental Consultant

The appointed Environmental Consultant will be required to oversee the construction programme and construction activities performed by the Contractor, in compliance with the present ESMP. It is recommended that prior to commencement of actual construction; the
Environmental Consultant should submit a work site plan that complies with the national environmental guidelines and an updated ESMP for the different phases of the work. The environmental plan should specify in particular the location of sources of materials, disposal area of construction debris and arrangements for traffic management. The plan should take into consideration the mitigation measures proposed in this report. MHC GEC should also appoint an Environmental officer who will be responsible for the following tasks:

- Identifying environmental aspects during project implementation;
- Managing environmental aspects and safety hazards at the work sites;
- S/He shall participate in the definition of the no working-areas;
- Recommending solutions for specific environmental problems;
- Organizing consultations at key stages of the project with the stakeholders and interested parties;
- Controlling and supervising the implementation of the ESMP;
- Preparing environmental progress or "audits" reports on the status of implementation of measures and management of work sites.

(d) The Contractor

The Contractors will integrate mitigation measured of this report during implementation of the project. The Contractor will nominate an Environmental Site Officer (ESO) who will be the Contractor’s focal point for all environmental matters. The ESO will be routinely on-site for the duration of the construction works.
Table 8.1: Environmental and Social Management Plan

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<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobilization/Construction Phase</strong></td>
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<td></td>
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</tr>
<tr>
<td>Vegetation clearance/Loss of biodiversity (flora, fauna and ecosystem)</td>
<td>- Keep clearance of the site for construction minimum and areas that will not be impacted by the project should not be disturbed.</td>
<td>Minimum cleared area as possible</td>
<td>RAS-DSM and MHCGEC</td>
<td>5,000,000</td>
</tr>
<tr>
<td></td>
<td>- The Contractor should instruct all construction workers to restrict clearing to the marked areas and not to work outside defined work areas.</td>
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<td></td>
<td>- Disturbed areas but not occupied by project components should be rehabilitating by seeding or planting ornamental trees. Planting of non-native or exotic will be avoided.</td>
<td></td>
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</tr>
<tr>
<td>Dust pollution</td>
<td>- Minimize the total area of bare earth at the construction site during dry periods.</td>
<td>To minimize Dust emission. PM 2.5 not to exceed 250 mg/Nm³ (peak readings). No complaints from the local community</td>
<td>Contractors and MHCGEC</td>
<td>17,000,000</td>
</tr>
<tr>
<td></td>
<td>- Contractor should minimize the movement of vehicles on unsealed surfaces and restrict speed.</td>
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<td></td>
<td>- All vehicle loads of soil / aggregates should be covered.</td>
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<tr>
<td></td>
<td>- Surface treating soil / aggregate stockpiles and wetting down bare earth areas in dry and windy conditions should be covered. Workers on the site must use PPEs such as dust masks and other relevant PPE during dry and windy conditions.</td>
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<tr>
<td>Potential Impact</td>
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<td>Estimated Costs (TZS)</td>
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</tbody>
</table>
| Noise pollution and vibration        | • Best practice procedures will be implemented to reduce noise and vibration during mobilization and construction phase. Such measure will include all plant and equipment be properly maintained, silenced where appropriate and switched off when not in use.  
  • Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the site will be conducted during day time hours.  
  • Neighboring residents should be notified prior any planned activity that could have excessive noise and vibration.  
  • Noise complaints should be recorded and immediately investigated. | TBS and WHO Standards          | Contractor and MHCGEC       | 9,000,000               |
| Emissions of Greenhouse Gas          | • Reduce air emissions from exhausts and noise by contracting new equipment or well-serviced and maintained equipment.  
  • No vehicles or equipment should be used that generate excessive black smoke.  
  • The contractor should inspect machines and vehicles on delivery. Vehicle load restrictions should be enforced to avoid excess emissions from engine overloading. | TBS standards                  | Contractor and MHCGEC       | 8,000,000               |
<p>| Contamination of land and water      | • Oils, hydrocarbons and other hazardous materials should be stored in designated locations with specific measures to prevent spills, leaks, and unauthorized access. | TBS and WHO standards, No     | Contractor and MHCGEC       | 10,000,000               |</p>
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
</table>
| due to accidental spills | prevent leakage and release of their contents, including the siting of the storage area away from storm water drains and on an impermeable base with impermeable secondary containment that has no outflow and is of adequate capacity to contain 110% of the contents  
  - Plant and machinery be kept away from surface waters and should have drip trays installed beneath oil tanks / engines / gearboxes / hydraulics which will be checked and emptied regularly  
  - Spill response plan should be prepared and implements. Spill kits should be available and staff trained on using it.  
  - The contractor should remediate any spills of hazardous substances caused by the construction project. | leakage/spillage of hydrocarbons | MHCGEC | |
| Increased Sediment Loads due to Erosion | Minimizing/avoiding establishment of borrow pits  
  - Any temporary borrow pits should be rehabilitate and vegetation planted to restore at least to the original state.  
  - When practicable the contractor should compact all areas with loose soil and excavate only area which is immediate needed | As minimum Erosion aspossible | Contractor and MHCGEC | 12,000,000 |
<p>| Environmental pollution from poor | The contractor should have a document mechanism/approach for handling hazardous waste such as oils, lubricants and non-combustible waste during bidding process. | Adequate solid Waste collection | Contractor and MHCGEC | 6,000,000 |</p>
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>management of waste</td>
<td>• Waste collection bins should be available, warning notices, “DOs &amp; DON'Ts” etc be posted at strategic points.</td>
<td>bins</td>
<td>bins</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No on site burial or open burning of solid waste shall be permitted.</td>
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<td></td>
<td>• Recyclable waste shall be segregated from other waste and handled to recycling company.</td>
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<tr>
<td></td>
<td>• The contractor should provide waste management awareness training to all workers</td>
<td></td>
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</tr>
<tr>
<td>Health hazards associated with</td>
<td>• The contractor should comply with occupational Health and Safety Act, 2003 and its subsequent regulations as well as World Bank operation policy on occupational health and safety</td>
<td>OSHA 2003, Low risk to</td>
<td>Contractor and MHCGEC</td>
<td>10,000,000</td>
</tr>
<tr>
<td>construction work</td>
<td>• Adequate Personal Protective Equipment’s (PPE) should provide to all relevant workers</td>
<td>workers No exposure</td>
<td></td>
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<tr>
<td></td>
<td>• Should maintain reasonable working hours and good working conditions and facilities.</td>
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<tr>
<td></td>
<td>• The contractor should develop and implement occupational Health and Safety (H&amp;S) plan.</td>
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<tr>
<td></td>
<td>• All incidents and accidents should be recorded, investigated and develop lesson learned to prevent reoccurrence in future.</td>
<td></td>
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</tr>
<tr>
<td>Spread of HIV/AIDS</td>
<td>• The contractor should prepare and implement HIV/AIDS awareness plan.</td>
<td>As minimum as possible</td>
<td>Contractor and MHCGEC</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Potential Impact</td>
<td>Management Measure</td>
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<td>Estimated Costs (TZS)</td>
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</tr>
<tr>
<td></td>
<td>• Awareness on HIV/AIDS should a part of induction for any new employee.</td>
<td>As minimum as possible</td>
<td>MHCGEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When the need arises, seek for professional assistance from organizations working in the field of public health and control of HIV/AIDS</td>
<td></td>
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<tr>
<td></td>
<td>• Free condoms will be made available and accessible at the construction to all workers.</td>
<td></td>
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<tr>
<td>Operation Phase</td>
<td>Waste handling facilities that facilitate sorting (based on waste categories) with clear labels at convenient point(s) for temporarily holding solid waste generated should be available at the site.</td>
<td>OSHA 2003, Low risk to workers, No exposure,</td>
<td>RAS-DSM and MHCGEC</td>
<td>18,000,000</td>
</tr>
<tr>
<td>Environmental Pollution Due to Poor Non-Medical Waste Management</td>
<td>• All non-medical waste generated due to activities of treatment center will be incinerated.</td>
<td></td>
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<tr>
<td></td>
<td>• No waste will be allowed to move outside the center unless pre-treated and authorized by the authority</td>
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<tr>
<td></td>
<td>• Collect and analyze data for waste generation to track the reduction trend of waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Pollution Due to Poor Biomedical Solid Waste</td>
<td>• All Biomedical wastes should be double treated i.e. primary treatment in autoclave and secondary treatment through incineration</td>
<td>OSHA 2003, Low risk to workers, No exposure,</td>
<td>RAS-DSM and MHCGEC</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Potential Impact</td>
<td>Management Measure</td>
<td>Target level/ Standard</td>
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</tr>
</tbody>
</table>
| Management       | • Personal Protective Equipment should be used when handling chemical or biomedical waste and individual handling this waste should be adequate trained   
• Medical waste should be collected in a suitable container e.g. waste-box and clearly labeled. The container should be leak resistant, impervious to moisture, of sufficient strength and sealed to prevent leakage
• Temeke Municipal Council ensure appropriate containers or bag holders are placed in all locations where particular categories of waste may be generated.
• Instructions on waste separation and identification should be posted at each waste collection point to remind staff of the procedures.  
• The containers for medical waste should have secondary containment when temporarily stored
• Record the amount of waste generated on daily or weekly basis in the log book i.e. type of waste, quantity, route of disposal and handling person
• No chemicals should be discharged into the sewage treatment system before undergoing neutralization |

**Biological Hazards/ Pathological waste**
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
</table>
|                  | • Segregate the waste, mixing should be avoided  
                 • Segregation be maintained in the temporary storage area and during transporting to incinerator  
                 • Ensure there is no spillage on the exterior of the container  
                 • Since EVD is highly infectious waste should be immediately pre-treated by autoclaving.  
                 • Any spillage should immediate cleaned with 0.5% chlorine                                                                                                           | OSHA 2003, Low risk to workers No exposure, EMA, 2004     | RAS-DSM and MHCGEC                   | 15,000,000            |
| Sharps           | • Collect all sharps together in a container which is puncture and tempered proof  
                 • Where plastic or metal containers are unavailable, containers made of dense cardboard that meets requirement of WHO could be used  
                 • No medical waste other than sharps should be deposited in sharps container                                                                                          | OSHA 2003, Low risk to workers No exposure, EMA, 2004     | RAS-DSM and MHCGEC                   | 10,000,000            |
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
</table>
| Environmental Pollution due to Liquid waste generation                          | • Ensure septic tank(s) are sealed to avoid any risk of spread of EVD  
• Use Chlorine i.e.0.5% for clearing ward, mortuary, ambulance and reusable equipments  
• Maintained septic tank at less than two-third full for safety reasons.  
• Conduct analysis before emptying septic tank a establish contents of wastewater  
• During emptying the septic tank sludge should be dehydrated and/or disinfected before being disposed in the special pit  
• Establish monitoring well to monitor pollution of groundwater due to Ebola treatment center operations | EMA, 2004; Low risk to the environment                          | RAS-DSM and MHCGEC                            | 30,000,000              |
| Occupational Health and Safety Hazards Associated with Ebola Treatment Center    | • MHCGEC should ensure the operation of the center meets the requirements of Occupational Health and Safety Act, 2003 and its subsequent regulations.  
• Ensure an adequate and sustainable supply of water and electricity to the treatment centre  
• Train staff on proper use of PPE and limitation of its uses  
• Appropriate Personal Protective Equipment (PPE) to all relevant staff should provide and properly used.  
• Emergency exits should be available and clearly labeled (with illuminating sign) and not locked.  
• Provide separate staff and patient access doors | OSHA 2003, Low risk to workers No exposure,  
<pre><code>                                                                                 | RAS-DSM and MHCGEC                            | 18,000,000              |
</code></pre>
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
</table>
| Operations               | • All external surfaces of specimen containers should be thoroughly disinfected prior to transport  
• Specimens should be placed in clearly-labeled, non-breakable, leak-proof containers and delivered directly to designated specimen handling areas  
• Place dead body in a double bag, wipe over the surface of each body bag with a disinfectant (e.g., 0.5% chlorine solution) and seal and label with the indication of highly infectious material  
• Move immediately dead body, after wrapping in sealed, leak-proof material (bag), to the mortuary and be buried promptly |                        |                         |                       |
| Exposure to blood spills and other body liquids, secretions or excretions | • Clean blood or body fluid spills using moistened cloths and wipes with water and a detergent and then disinfect with a 0.5% chlorine solution  
• Remove blood spill, body liquid and secretion/excretion by covering with a rag or paper towel  
• Put wipe up and the waste, rags or towel into a waste container designated as infectious waste for disposal. | OSHA 2003,  
Low risk to workers  
No exposure,  
RAS-DSM and MHCGEC |                         |                       |
| Cleaning the Treatment Center | • Cleaners in the green zone should wear a disposable gown, | OSHA 2003,  
RAS-DSM |                         | 10,000,000 |
<p>| | | | | |
|                          |                                                                                                                                  |                        |                         |                       |
|                          |                                                                                                                                  |                        |                         | 7,500,000 |</p>
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>heavy duty gloves, mask, face shield, and boots as a minimum</td>
<td>Low risk to workers</td>
<td>MHCGEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cleaners in the red zone should wear full PPE</td>
<td>No exposure,</td>
<td>RAS-DSM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cleaning will be carried out from “clean” areas to “dirty” areas</td>
<td></td>
<td>MHCGEC</td>
<td></td>
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<tr>
<td></td>
<td><strong>Post-mortem examinations</strong></td>
<td></td>
<td>RAS-DSM</td>
<td>15,000,000</td>
</tr>
<tr>
<td></td>
<td>• Personnel involved in the examination should use PPE including eye protection, mask, double gloves and disposable impermeable gowns.</td>
<td>OSHA 2003, Low risk to workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Specimens should be placed in clearly-labeled, non-breakable, leak-proof containers and delivered directly to designated specimen handling areas</td>
<td>No exposure,</td>
<td>MHCGEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• disinfect external surfaces of specimen containers prior to transport</td>
<td></td>
<td>RAS-DSM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tissue or body fluids for disposal should be carefully placed in clearly marked, sealed containers for autoclaving and incineration</td>
<td>Disinfect external</td>
<td>MHCGEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Movement (ward to Mortuary) and Burial of Infected Body</td>
<td></td>
<td>RAS-DSM</td>
<td>15,000,000</td>
</tr>
<tr>
<td></td>
<td>• Ensure person involved should wear PPE and rubber boots or closed puncture or fluid-resistant shoes and overshoes to handle the dead body of an EVD suspected or confirmed case.</td>
<td>OSHA 2003,</td>
<td></td>
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<td></td>
<td>• Do not spray, wash or embalm the dead body</td>
<td></td>
<td>RAS-DSM</td>
<td></td>
</tr>
<tr>
<td>Potential Impact</td>
<td>Management Measure</td>
<td>Target level/ Standard</td>
<td>Responsible Institution</td>
<td>Estimated Costs (TZS)</td>
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<tr>
<td></td>
<td>• Place died body in a double bag, wipe over the surface of each body bag with a disinfectant (e.g., 0.5% chlorine solution) and seal and label with the indication of highly infectious material</td>
<td>Low risk to workers</td>
<td>and MHCGEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Remove PPE immediately after the procedure and perform hand hygiene immediately following PPE removal and disinfect with chlorine</td>
<td>No exposure,</td>
<td></td>
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</tr>
</tbody>
</table>
| Air pollution due to Incineration| • A well trained person should be available to operate the incinerator;  
• Only Medical waste should be incinerated other wastes should be handled using general waste management system.  
• Minimize or eliminate where possible the use of PVC containing materials at the center.  
• The Temeke Municipal Council should implement a mercury free purchasing policy in order to reduce mercury containing waste.  
• The incinerator should be kept in optimal working condition and serviced according to the manufacturers maintenance requirements.  
• The furnace should be designed to ensure the flue gas will stay in high temperature zone for at least 2 seconds. This will reduce concentration of dioxins | TBS standards, as minimum as possible    | RAS-DSM and MHCGEC         | 7,500,000             |
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Management Measure</th>
<th>Target level/ Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased electricity and water consumption</td>
<td>• Install an automatic load limiting system to ensure proper use of equipment.</td>
<td>As minimum as possible</td>
<td>RAS-DSM and MHCGEC</td>
<td>20,000,000</td>
</tr>
<tr>
<td></td>
<td>• The lighting system should be designed to be compatible with the acoustical, thermal, spatial and aesthetic requirements of the center. Design for optimum conservation of energy will include: use of effective economic luminaries; use of LED lamps; use of dimmers where appropriate; turning off of lights in areas when and where not needed; control of window brightness; use of daylight as much as practical</td>
<td></td>
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<tr>
<td></td>
<td>• Keeping of lighting fixtures and lamps clean and in good working conditions.</td>
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<tr>
<td></td>
<td>• Implement demand side water use efficiency measures to avoid unnecessary use of water.</td>
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</tbody>
</table>

**Decommissioning Phase**

<table>
<thead>
<tr>
<th>Loss of employment</th>
<th>• Temeke Municipal Council should ensure that all employees are members of the pension fund and their contributions are made on time.</th>
<th>All affected people</th>
<th>MHCGEC and contractor</th>
<th>5,500,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Workers we will be prepared for forced retirement by providing skills for self-employment, wise investment and relevant skills to workers through on job training to make them marketable after decommission.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• The debris resulting from the demolition should be transported</td>
<td>As minimum as possible</td>
<td>RAS-DSM</td>
<td>19,000,000</td>
</tr>
<tr>
<td>Potential Impact</td>
<td>Management Measure</td>
<td>Target level/ Standard</td>
<td>Responsible Institution</td>
<td>Estimated Costs (TZS)</td>
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</tbody>
</table>
| aesthetics due to haphazard disposal of demolished waste | by a licensed waste transporter for dumping at an approved site or can be used as base material for new construction work.  
- All the necessary health and safety measures should be implemented including provision of personal protective equipment such as, safety harnesses, helmets, gloves, respirators, safety shoes, coveralls, goggles, ear protectors and other relevant PPEs.  
- Affected land should restored including filling in of any open pits and grading the land to its natural contours, then planting appropriate tree species and cover vegetation to hold the soil in place and to prevent flooding. | possible | and MHCGEC |  |
| Dust and noise pollution from demolishing works | Site-specific waste management plan should be prepared by the contractor prior to commencement of demolition works.  
- Water should be used to suppress excessive dust and whenever possible.  
- The contractor should provide protective gear (i.e. breathing masks, earpieces etc.) to workers working in dusty environment.  
- Use of equipment designed with noise control elements will be adopted where necessary  
- Demolition exercise should be limited at day time only. | PM 2.5 not to exceed 250 mg/Nm³ (peak readings), No complaints from the local community | RAS-DSM and MHCGEC | 10,000,000 |
9. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Environmental and social monitoring plan provides the application of ESMP as well as dealing with ad hoc or unforeseen issues, which need to be mitigated. Details on parameters to be monitored have been considered along with costs estimates and responsible institution(s). Mitigation measures are of little or no value unless they are implemented. Monitoring plan aim to ensure timely implementation of mitigation measures as well as enhancement measures.

As will be noted, the main responsibility for the implementation of the monitoring plan falls with the Contractor and the responsibility for the supervision of its adequate implementation fall with the site Engineer. While the responsibility for monitoring ESMP implementation fall with Temeke Municipal Council.

The details for Environmental and Socio monitoring Plan of the proposed upgrading of the Temeke Treatment Center is presented in the table 9.1 below
Table 9.1: Environmental and Social Monitoring Plan

<table>
<thead>
<tr>
<th>Potential Impacts</th>
<th>Parameter to be monitored</th>
<th>Monitoring Frequency</th>
<th>Monitoring Area</th>
<th>Measurement Units</th>
<th>Measuring Method</th>
<th>Target Level / Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
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<tbody>
<tr>
<td>Mobilization/Construction Phase</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetation clearance/Loss of biodiversity (flora, fauna and ecosystem)</td>
<td>Size of land cleared, number of trees planted,</td>
<td>Weekly inspections</td>
<td>Project area</td>
<td>m², Number of affected species</td>
<td>Visual observation</td>
<td>Minimum cleared area as possible</td>
<td>MHCGEC, Contractor</td>
<td>3,500,000</td>
</tr>
<tr>
<td>Contamination of land and water due to accidental spills</td>
<td>Fuel and hazardous material storage areas, plant and machinery,</td>
<td>Daily inspection of fuel and storage areas</td>
<td>Project area</td>
<td>mg/l</td>
<td>Sampling and analysis(Spectrophotometer)</td>
<td>TBS and WHO standards, No leakage/spillage of hydrocarbons</td>
<td>MHCGEC, Contractor</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Increased Sediment Loads due to Erosion</td>
<td>Siltation of storm-water drains, formation of Rill/gully</td>
<td>Weekly checks</td>
<td>General project area</td>
<td>Number of affected storm-water drains, Number of complaints</td>
<td>Visual inspection</td>
<td>As minimum erosion as possible</td>
<td>MHCGEC, Contractor</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Potential Impacts</td>
<td>Parameter to be monitored</td>
<td>Monitoring Frequency</td>
<td>Monitoring Area</td>
<td>Measurement Units</td>
<td>Measuring Method</td>
<td>Target Level / Standard</td>
<td>Responsible Institution</td>
<td>Estimated Costs (TZS)</td>
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<tr>
<td>Environmental pollution due to poor management of construction waste</td>
<td>Amount of solid waste generated and disposed, presence of adequate dustbins</td>
<td>Weekly inspections to ensure waste storage,</td>
<td>General project area</td>
<td>Volume/weight of waste</td>
<td>Site inspection, Observation, Quantity analysis</td>
<td>Waste segregation, and disposal</td>
<td>MHCGEC, Contractor</td>
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</tr>
<tr>
<td>Health hazards associated with construction work</td>
<td>Registered worker Injury/illness, Proper use PPE</td>
<td>Monthly</td>
<td>Work sites</td>
<td>Number of cases / injuries, workers using PPE</td>
<td>Medical records, and site inspection</td>
<td>OSHA 2003, Low risk to workers No exposure</td>
<td>MHCGEC, Contractor</td>
<td>4,000,000</td>
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<tr>
<td>Spread of HIV/AIDS</td>
<td>Number of new infection cases</td>
<td>Monthly checks</td>
<td>General project area</td>
<td>Number</td>
<td>Analysis of medical records</td>
<td>No new infection due to project activities</td>
<td>MHCGEC, Contractor</td>
<td>3,000,000</td>
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**Operation Phase**

<table>
<thead>
<tr>
<th>Potential Impacts</th>
<th>Parameter to be monitored</th>
<th>Monitoring Frequency</th>
<th>Monitoring Area</th>
<th>Measurement Units</th>
<th>Measuring Method</th>
<th>Target Level / Standard</th>
<th>Responsible Institution</th>
<th>Estimated Costs (TZS)</th>
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<tbody>
<tr>
<td>Environmental Pollution Due to Poor non-medical Waste Management</td>
<td>Amount of solid waste generated, Amount of Waste</td>
<td>Once per month</td>
<td>Dumpsite, general project area</td>
<td>Volume/weight of waste</td>
<td>Site inspection, Observation, Quantity analysis</td>
<td>No waste at the Site, no complaint</td>
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<tr>
<td>Potential Impacts</td>
<td>Parameter to be monitored</td>
<td>Monitoring Frequency</td>
<td>Monitoring Area</td>
<td>Measurement Units</td>
<td>Measuring Method</td>
<td>Target Level / Standard</td>
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<tr>
<td>Environmental Pollution Due to Poor Biomedical Solid Waste Management</td>
<td>Amount of medical wastes generated and disposed. amount of medical waste disposed by third party</td>
<td>Weekly</td>
<td>General project area</td>
<td>Volume/weight of waste</td>
<td>Site inspection, Observation, Quantity analysis</td>
<td>No medical mixed with general waste at the Site, no complaint</td>
<td>MHCGEC</td>
<td>8,000,000</td>
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<tr>
<td>Environmental Pollution due to Liquid waste generation</td>
<td>Water quality of from monitoring well, overflow of the septic tanks</td>
<td>Weekly and quarterly</td>
<td>Project site</td>
<td>Number of incidents, BOD, COD, Heavy metal, presence of EVD</td>
<td>Site observation, water sample laboratory analysis</td>
<td>TBS and WHO standards</td>
<td>MHCGEC</td>
<td>15,000,000</td>
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<td>Occupational Health and Safety Hazards Associated</td>
<td>Number incidents, number of persons with injuries</td>
<td>Quarterly</td>
<td>Project records</td>
<td>Number of incidents and injuries</td>
<td>Site observation, incidents analysis</td>
<td>OSHA 2003, Low risk to workers No exposure</td>
<td>MHCGEC</td>
<td>3,500,000</td>
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<tr>
<td>Potential Impacts</td>
<td>Parameter to be monitored</td>
<td>Monitoring Frequency</td>
<td>Monitoring Area</td>
<td>Measurement Units</td>
<td>Measuring Method</td>
<td>Target Level / Standard</td>
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<tr>
<td>with Ebola Treatment Center Operations</td>
<td>Emissions released, number of complaints</td>
<td>Once per month</td>
<td>Project area</td>
<td>mg/m$^3$ or mg/Nm$^3$</td>
<td>Combustion Gas analyzer or dragger pump with detector tubes</td>
<td>TBS and WHO standards</td>
<td>MHCGEC</td>
<td>7,000,000</td>
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<tr>
<td>Air pollution due to Incineration</td>
<td>Energy efficiency equipment and measures</td>
<td>Once every three month</td>
<td>Project area</td>
<td>kWh</td>
<td>Site inspection, analysis of energy consumption trend</td>
<td>As minimum as possible</td>
<td>MHCGEC</td>
<td>3,000,000</td>
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<tr>
<td>Increased electricity and water consumption</td>
<td>Number of patients served, type of services/test</td>
<td>Quarterly</td>
<td>Country wise</td>
<td>Number and type of services</td>
<td>Survey, observation, analysis of records</td>
<td>As improved services as possible</td>
<td>MHCGEC</td>
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</tr>
<tr>
<td>Improved Ebola Treatment Services in the country</td>
<td>Number of Tanzanian Employed, number of</td>
<td>Annually</td>
<td>Project site</td>
<td>Numbers of Tanzania Employed and local</td>
<td>Analysis of records, site observation</td>
<td>Maximum number as possible</td>
<td>MHCGEC</td>
<td>4,000,000</td>
</tr>
<tr>
<td>Potential Impacts</td>
<td>Parameter to be monitored</td>
<td>Monitoring Frequency</td>
<td>Monitoring Area</td>
<td>Measureme nt Units</td>
<td>Measuring Method</td>
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<td></td>
<td>contract with local suppliers</td>
<td></td>
<td></td>
<td>supplier contracted</td>
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<tr>
<td><strong>Decommissioning Phase</strong></td>
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<tr>
<td>Loss of employment</td>
<td>Pension fund remittance</td>
<td>Once every year</td>
<td>Project site</td>
<td>Number of Employees registered with pension fund</td>
<td>Review of workers register book</td>
<td>All workers</td>
<td>MHCGEC</td>
<td>3,500,000</td>
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<tr>
<td>Loss of aesthetics due to haphazard disposal of demolished waste</td>
<td>Accumulation of stockpiling materials</td>
<td>Once after one month since decommissioning</td>
<td>Project area</td>
<td>None</td>
<td>Visual inspection, review records of complaints</td>
<td>As minimum pollution as possible</td>
<td>MHCGEC</td>
<td>2,500,000</td>
</tr>
<tr>
<td>Dust and noise pollution from demolishing works</td>
<td>Suspended solids in air and Noise level</td>
<td>During decommissioning</td>
<td>Project Site</td>
<td>μg/m³, dBA</td>
<td>Noise level meter, Dust level meter</td>
<td>As minimum as possible</td>
<td>MHCGEC</td>
<td>4,000,000</td>
</tr>
</tbody>
</table>
10. COST BENEFIT ANALYSIS

10.1 FINANCIAL COST BENEFIT ANALYSIS TO THE PROJECT

Cost-benefit analysis is normally done in the framework of feasibility study of an activity. The aim of cost-benefit analysis is to inform or assist the project developer to make a decision on:

- Whether it makes economic sense to continue with the project;
- Whether the chosen option is cost effective alternative;
- The estimate of the size of a project.

In this project the costs of the upgrading of the Temeke Ebola Treatment Center will include:

- Capital expenditures (for construction of the building, wastewater treatment system-septic tank, incinerator)
- Operating and Maintenance costs;
- Staff costs;
- Materials;
- Importation of chemicals and reagents
- Research and Development; and
- Environment, Health and Other social costs.

Benefits may include:

- Accommodate current and future demand of modern Ebola Treatment services in the country
- Provision of modern Ebola Treatment equipments to patients and staff
- Reduction of costs for getting Ebola treatment from other countries
- Potential for additional revenues to the country;
- Protection of environment and health;
- Provision of other social benefits.

10.2 QUANTIFIABLE AND NON-QUANTIFIABLE BENEFITS TO COMMUNITIES

There will be direct and indirect benefits to the communities as follows:

- The project will employ substantial number of workers for construction and other activities during the project operation. The majority of the non-skilled labour will be recruited from the communities neighboring to the project site. A good number of skilled staff will be recruited from within Tanzania.
• Through taxes, Center will be indirectly contributing to the development projects such as roads, railway, medical care and education services.
• The presence of Ebola Treatment center in the area will drastically increase business opportunities in the area, hence increase revenue.

10.3 QUANTIFIABLE AND NON-QUANTIFIABLE BENEFITS TO GOVERNMENT

• Although Center aim to provide services to the citizens, the government of Tanzania will directly benefit from taxes collected testing and diagnostic for both Tanzania Citizens as well as foreigners.
• Apart from taxes, the project will also enhance the health of Tanzanian, which will enable them to participate effectively in economic activities.
• Improved health services in the country will increase attractions to foreign investors and ensure continued economic growth.
• Installation of modern diagnostic facilities will reduce costs incurred by Tanzanians to travel abroad to seek similar services

10.4 POSSIBLE COSTS TO COMMUNITIES

It is a fact that construction of Ebola treatment center entails social and environmental impacts. These have been elaborated clearly in Chapters 6 – 9. However, MHCGEC is committed to mitigate the negative social and environmental impacts.

10.5 POSSIBLE COSTS TO GOVERNMENT

The Temeke Municipal Council is overall custodian of the Temeke hospital; however Ebola treatment Center is coordinated and operated by MHCGEC. Therefore all environmental and social impact that has been identified in chapter 6-8 will be direct costs to the MHCGEC.

10.6 ENVIRONMENTAL COST BENEFIT ANALYSIS

Environmental cost benefit analysis is assessed in terms of the negative versus positive impacts. Furthermore, the analysis is considering whether the impacts can be mitigated and if the costs of mitigation are reasonable. As it has been presented in Chapters 6 – 9, the potential benefits of the project, in terms of financial and social benefit are substantial. The environmental impacts can be mitigated and the financial resources needed to mitigate negative impacts, when compared to the required investment, are relatively small.

10.7 SOCIAL ECONOMIC COST BENEFIT ANALYSIS

Availability of modern treatment Center in the country as the main national testing and detection service centre is expected to accelerate social economic development. There are several
governmental initiatives such as increasing school enrolment, improving agriculture, encouraging citizen to participate in economic activities, promotion of industrial development etc that cannot be realized without reliable and advanced health services. Improving health sector through upgrading of Ebola treatment center, one should expect active participation of citizens in economic activities, high school attendance due to control of EVD, good performance at workplace, more investments to be established due to reduction of EVD outbreak risk and thus create employment for the communities and boost the economy of the country.
11. DECOMMISSIONING PLAN

This is a preliminary decommissioning plan. This plan establishes feasible decommissioning schemes that can be accomplished within established guides and limits of the appropriate regulatory agencies, without undue risk to the health and safety of the public and staff and without adverse effects on the environment. This plan will serve to ensure that the decommissioning and ultimate dispositions of Temeke Treatment Center are considered during the initial design of the project implementation. The preliminary plan will remain a “living document,” and revisions will be made throughout the operating life of the project. It must be reviewed periodically and revised to reflect any changes in the Center’s operation that might affect decommissioning. Prior to the initiation of actual decommissioning activities, a detailed final disposition plan will be prepared.

This preliminary plan and its revisions form the foundation of the final plan; the final plan will define specific work activities and include safety evaluations of planned decommissioning methods, new technology, and the treatment center status that will result from the decommissioning program. In addition, the plan must contain sufficient information to obtain any approvals needed from the appropriate regulatory authorities to proceed with decommissioning activities.

11.1 AIM OF THE PRELIMINARY PLAN

The preliminary plan provides a general description of decommissioning methods considered feasible for the Center project. The description is intended to demonstrate that the methods considered are practical and that they protect the environment, health and safety of the public and decommissioning workers. Design experts should study the proposed decommissioning methods and take steps to ensure that the design incorporates features that will facilitate decommissioning. Considerations include:

- An estimate of manpower, materials, and costs anticipated to support decommissioning.
- A description of the anticipated final disposition and status of the project equipment and site.
- A discussion demonstrating that adequate financing will be programmed for decommissioning.
- Identification of records that should be maintained during construction and operation which might facilitate decommissioning, including a set of “as built” drawings.

11.2 PROJECT DECOMMISSIONING METHODOLOGY AND SCHEDULE

The TMC shall fund and implement all aspects of project decommissioning, including but not limited to, all engineering, environmental assessment, permitting, construction, and mitigation activities associated with the removal of the structures, in accordance with this plan and mitigation of project removal impacts on site and area of influence. The TMC shall monitor
environmental impacts during and after project removal to respond to defined events during the monitoring phase.

(a) Decommissioning will involve, but not limited to the specified list, because some issues or problems may surface during subsequent monitoring and audits:

- The buildings will continuously be rehabilitated and renovated. While doing that there will be solid wastes which will be disposed off according to the ESMP.
- Moreover during decommissioning the buildings will be demolished accordingly to suit the new activity while doing that the rubble will be disposed of according to the directions of the Temeke Municipality.

(b) Employees will be terminated from their employments and to them the future will look blunt. Three things will be observed:

- Their contributions to the pension fund will be made monthly as required by law;
- Training programme will be made to continuously advance them into apt skills and professions;
- The termination benefits including transport and disturbance allowances will be provided.

(c) On decommissioning the MHCGEC will search for experts’ opinions in order to convert the entire Ebola treatment center into another or other uses. According to the current priorities the possible uses will be:

- Using it as centre of excellence for researchers and trainees as well as other medical practitioners with focus on treatment of Ebola disease
- Converting it into specialized hospital unit.
- Convert into offices

(d) The restoration plan for the entire premises will be made by MHCGEC (with expertise from Environmental expert and economists) and then forwarded to NEMC for approval.

(e) Also MHCGEC shall obtain all permits required to undertake decommissioning of the Project.

Project removal will begin six months after closure and continue for twelve months. Within the six months from closure, MHCGEC will make inventory all components that need to be removed and or disposed of. This inventory will include building structures, equipment etc. to be demolished/dismantled. Also mode of disposal will have to be finalized. This information will assist in the preparation of the final decommissioning plan, for approval by NEMC.
After the approval of the decommissioning plan the metal parts will be removed first within the first two months (this is important to ensure that they are not vandalized). The second two months of the decommissioning will be used to remove structures (building, incinerator, power house, septic tanks) and foundations. Debris will be used as road fills for peri-urban roads. All disturbed areas will be landscaped and re-vegetated using indigenous trees. Project decommissioning has five phases:

1) Pre-removal monitoring;
2) Permitting;
3) Interim protective measures;
4) Project removal and associated protective actions;
5) Post-removal activities, including monitoring of environment and socio economic activities.

The first three phases will occur prior to removal of the project (i.e. within the first six months). The fourth phase — project removal and associated protective actions — will take place twelve months after closing business. The fifth phase will begin after total removal and continue for at least one year.

The description that follows outlines the activities that will occur in each phase and provide references to detailed descriptions of each activity elsewhere in this Plan.

(1) Pre-removal monitoring: Pre-removal monitoring includes environmental and socio economic status of the project area. This monitoring is essential to identify if there is any environmental or social liability, which need to be settled before the permit for closure is given. This period will also be used for inventory of all assets and facilities that need to be disposed of and to prepare a final decommissioning plan for approval by NEMC.

(2) Permitting: The owner shall obtain all permits required to undertake removal of the Project. This basically will include NEMC.

(3) Interim Protective Actions: This will take care of any interim protective measure that needs to be implemented to protect human health and environment.

(4) Project Removal: As noted above, the removal of the project will be completed within six months.

(5) Post-Removal Activities: Post-Project removal monitoring will continue for one year.
12. SUMMARY AND CONCLUSIONS

The analysis performed to fulfill the EIA requirement for this project complies with Tanzania National Environmental Laws, the World Bank environmental and social safeguards standards, and WHO recommendations/standards. The EIA establishes the baseline condition of the site and assesses the impact of the proposed upgrading of the Temeke Ebola Treatment Center. The likely positive and negative impacts of the proposed project are identified and quantified to the extent possible. The issues/impacts have been assessed and described in detail to gain an adequate understanding of possible environmental effects of the proposed project – from mobilization phase to decommissioning phase. This was done in order to formulate mitigation measures in response to negative aspects that foreseen.

The proposed mitigation measures are included in the Environmental and Social Management Plan (ESMP). The ESMP has been developed to implement the proposed environmental mitigation measures to minimize potential adverse impacts and enhance positive impacts. The EIA also outlines the environmental and social monitoring plan (ESMP). The ESMP consists of the set of costed mitigation, monitoring, and institutional measures to be taken during mobilization to decommissioning of the planned upgrading of Ebola Treatment Center project to eliminate, offset, or reduce adverse environmental and social impacts. It supports the ESMP by maintaining a record of environmental performance and enabling adjustments to be made to mitigate environmental and socio-economic impacts during the lifetime of the project.

In all phases occupational health and safety will be strictly exercised and controlled through continuous inspection to prevent disease and accidents. To reinforce this, workers will undergo an environmental and safety briefing on safety, sanitation measures, and emergency rescue procedures before development begins.

Given the nature and location of the project, the conclusion is that the potential impacts associated with the proposed project are of a nature and extent that can be reduced, limited and eliminated by the application of appropriate mitigation measures as proposed in this report. Thus the proposed environmental and social management plan and environmental monitoring plan if implemented adequately will safeguard the ecological soundness of the environment during the lifetime of the proposed project.
REFERENCES/BIBLIOGRAPHY


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Temeke Municipality (2014): Temeke Municipality Profile

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URT, the Environment Impact Assessment and Audit Regulations, 2005

URT, the Employment and Labour Relation Act No. 6 of 2004

URT, The Environmental Management Act, Cap 191

URT, The Land Use Planning Act No.6 of 2007

URT, The Local Government (Urban Authorities) Act, Cap 288


URT, The National Environmental Policy (URT 1997)
URT, The National Health Policy (1990)

URT, The National Investment Promotion Policy (URT 1996)

URT, The National Land Act, Cap 113


URT, The National Water Policy (URT, 2002)


URT, The Tanzania Development Vision 2025

URT, The Urban Planning Act No. 8 of 2007


URT, The Workers Compensation Act, 2008

WHO (undated): Setting up an Ebola Treatment Centre (ETC)

WHO (2015): Checklist for terminal cleaning and decontamination of Ebola Care Facilities


1.1 Introduction

During scoping several key environmental and social issues of concern were identified after holding consultations with stakeholders of the project and also reviewing various literature related to the project. Similarly, expert opinion was sought on various key issues identified as requiring specialized knowledge. The outcome of the scoping exercise is the scoping report which is the basis of the draft terms of reference.

The purpose of Terms of Reference (TOR) therefore, is to provide formal guidance to the Proponent /EIA Consultant of the Proposed upgrading of the Ebola Treatment center on the range of issues that must be addressed in the EIA process. In these Terms of reference, strategies for addressing the issues identified during scoping have been incorporated to make the EIA focused.

1.2 Project Description

The Ministry of Health, Community Development, Gender, Elderly and Children (MHCGEC) with support of the World Bank under its East Africa Public Health Laboratory Network, intends to upgrade the Temeke Ebola Treatment Center located at the Temeke Municipal hospitality in Dar es Salaam. This center is expected to serve as a Dar es Salaam regional and national treatment center for Ebola. The proposed upgrading will involve construction of a small mortuary building and boundary wall, installation of an incinerator as well as implementation of external works such as landscaping and paving. This development is aimed at strengthening Tanzania’s preparedness against the growing threats of infectious disease outbreaks such as Ebola in Tanzania and across the East African region.

1.3 Objectives of EIA

Construction/upgrading activities of the Ebola treatment center at Temeke are included in the mandatory list of the projects that are required to develop full EIA by the Environmental Management Act No 20 of 2004. Part IV of EIA regulations G.N. 349 of 2005 provides the general objectives for carrying EIA, among others list comprise the following:

The objective of the EIA is as articulated in the EIA regulations (Part IV, section 12) are to:
• To establish baseline information on both natural and built environment including socio-economic conditions of the proposed upgrading of the Temeke’s Ebola treatment center, Temeke Municipality
• To identify, predict and evaluate foreseeable impacts, both beneficial and adverse, of the proposed project; and
• To develop mitigation measures that aim at eliminating or minimizing the potential negative impacts and promote positive ones.
• To develop management clauses and monitoring aspects to be observed during project implementation.

1.4 Study Area

The site where the project will be developed is in Temeke Municipality at the Temeke Hospital’s Isolation Center for infection diseases in Temeke district. Temeke district is located in the south of Dar es Salaam city, borders Coastal Region in the South, Ilala Municipality in the North and West while in the East it stretches by the coastal line of the Indian Ocean. Its coordinates are 6°55'0” S and 39°25'0” E in DMS (Degrees Minutes Seconds) or -6.91667 and 39.4167 (in decimal degrees). Its UTM position is EN43 and its Joint Operation Graphics reference is SB37-11. The land area where project will be developed is owned by the Temeke hospital through the Temeke municipal council.

1.5 Environmental Impact Assessment Scope of Work

Task 1: Description of the Proposed Project

The Consultant shall give details of:

• Location of all project-related development and operation sites
• General layout of facilities - diagrams of facilities, design basis, size, sources of utilities;
• pre-construction activities and construction activities;
• Organizational relationships, mandates and interactions among the different parties to be involved in the project

Task 2: Description of the Environment

The Consultant shall:

i. Provide general description of the project environment and sources of information for anyone requiring a more extensive description (especially the EIA reviewers).
ii. Identify those features that are particularly important in the project area – Temeke area and other areas related to the project in Dar es Salaam City i.e. maps at appropriate scales to illustrate the surrounding areas likely to be environmentally and socially affected.
iii. Identify areas that require special attention in the project implementation.
Environmental Impact Assessment shall specifically focus on these ecological components in the environment to ensure that the proposed development does not harm the well-being of these characteristics.

Task 3: Legislative and Regulatory Considerations

The Consultant shall:

Describe pertinent local, national and international regulations and standards governing environmental quality, health and safety, land use control etc. which the project developer required to observe during the implementation of the project activities.

Task 4: Determination of Potential Impacts of the new Proposed Project Component

Under this activity the consultant shall:

i. identify issues and concerns in order to find suitable remedies;
ii. identify linkages among project components and the issues;
iii. identify where project activities or elements interact with social and biophysical environment (direct impacts):
iv. identify indirect impacts of the project on the environment;
v. identify cumulative impacts that may be anticipated;
vi. identify residual impacts if any;
vii. predict probability, magnitude, distribution and timing of expected impacts:
viii. for certain project components it might be necessary to carry out assessment at two or more sites (alternatives) in order to come out with the best option; and
ix. Forecast what will happen to the affected environmental components if the project is implemented as is or if the alternatives (e.g. sites and routes) are chosen.

Task 5: Estimation of the significance of the impacts

The consultant shall:

i. determine which environmental components are mostly affected by the project or its alternatives;
ii. list issues raised by the public and classify them according the level and frequency of concern whenever possible;
iii. list regulatory standards, guidelines etc. that need to be met; and
iv. Rank predicted impacts in order of priority for avoidance, mitigation, compensation and monitoring.
Task 6: Development of Management Plan to Mitigate Negative Impacts and develop a monitoring plan

The consultant shall:

i. determine appropriate measures to avoid or mitigate undesirable impacts;
ii. assess and describe the anticipated effectiveness of proposed measures;
iii. ascertain regulatory requirements and expected performance standards;
iv. determine and assess methods to monitor impacts for prediction accuracy remedial measures for effectiveness;
v. determine and assess methods to monitor for early warning of unexpected effects;
vi. re-assess project plans, design and project management structure;
vii. describe follow-up scheme and post-project action plan for achieving EIA objectives; and
viii. Assess the level of financial commitment by the project proponent for the management and monitoring plan, and follow up activities.

The consultant shall be guided by the cost-effectiveness principles in proposing amelioration measures. Estimation of costs of those measures shall be made. The assessment will provide a detailed plan to monitor the implementation of the mitigation measures and impacts of the project during construction and operation.

Task 7: Institutional set-up for

The Consultant shall review the institutional set-up - community, ward, City/ Regional and national levels - for implementation of the Management and Monitoring Plans recommended in the environmental assessment. The assessment shall identify who should be responsible for what and when.

Task 8: Drawing Recommendations

The consultant shall:

i. highlight key concerns and considerations associated with the acceptance and implementation of recommended actions;
ii. determine resources requirements for implementing recommendations;
iii. determine capacity and resourcefulness of the client to meeting such commitment;
iv. explain rationale for proposed development and benefits and costs vis-à-vis the no-project option;
v. Ascertain degree of public acceptance of or reaction to recommendations.

Task 9: Environmental Impact Statement (EIS)

The assessment shall result into an EIS focusing on findings of the assessment, conclusions and recommended actions, supported by summaries of data collected etc. This shall be a concise
document limited to significant environmental issues. The report format will be as per EIA and Audit Regulations, 2005.

Task 10: Review

The review report from NEMC may require further input (data collection, consultation inputs etc.). The consultant shall undertake to provide extra information and inputs until the project review is satisfactorily concluded.

Task 11: Public involvement

The assessment shall establish the level of consultation of the affected stakeholders before designing the project, level of involvement in the running and maintenance of the project facilities as this is an important aspect for both environmental and project sustainability.

The assessment will provide a framework:

- For coordinating the environmental impact assessment with other government agencies, and
- For obtaining the views of affected groups, and in keeping records of meeting and other activities, communications, and comments and their disposition.

A people’s participation report will be prepared as part of the EIS i.e. apart from the socio-economic and cultural impact report (which basically are dealing with consultants’ perception and interpretation of issues). Consultations with various stakeholders have been conducted during the scoping and further consultation will be conducted during the EIA study.

1.6 Time Scale

It is expected that the study would be completed within a period of 4 months.

1.7 Personnel Requirement

The consultant shall be an Environmental Impact Assessment Expert with 8-10 years’ experience in ESIA particularly in health sector and construction industry in Tanzania. Should have knowledge and experience in Social Assessment and be able to write high quality reports. He / she will also need to be able to undertake analysis and use of qualitative and quantities data / information. 

1.8 Reporting and Report Presentation

The draft of the EIA document submitted to Council should be concise, following the report writing guidelines in the Environment Impact Assessment and Audit Regulations, Gn No.349/2005 for simplifying the review process.

1.9 Record of Meetings
The consultants shall provide record of the names of organizations, government and departments and individuals whose views will be obtained. The record will also provide description of views and information that will be obtained.

1.10 Outputs

The consultant shall submit to the Client, 3 original bound hard copies and electronic copies of the Scoping Report and the Environmental Impact Statement (EIS). The Consultant shall also make 15 copies for the review process as stipulated in the EMA 2004.

1.11 Reference

The consultant shall provide a list of all information sources used, including unpublished documents and sources.

1.12 Proposed Team of Consultant

<table>
<thead>
<tr>
<th>Professional Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of Staff</strong></td>
</tr>
<tr>
<td>Erneus Kaijage</td>
</tr>
<tr>
<td>Jofta Timanywa</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| **Alice Mushi**             | BA Sociology (UDSM)                    | ECO Associates                        | Sociologist                               | Establishing baseline socio-economic conditions  
- Socio-economic impact analysis  
- Developing mitigation recommendations for socio-economic impacts  
- Organizing and conducting stakeholder consultation meetings  
- Undertake ARAP (census, social surveys, grievance framework development, consultations)  
- Social impact mitigation recommendations |
| **KALIBBALA Herbert Mpagi** | BSc Civil (MAK), MSc (Env Eng’ing), PhD (Sweden)  
- NEMA registered EIA Practitioner | Civil/ environmental engineering       | Public Health Specialist                  | Identifying and analysing potential occupational health & safety impacts during construction phase.  
- Analysing public health impacts of construction and operation phase of the project (dust emissions, waste management, air pollution, noise, sewage and wastewater emissions, etc).  
- Developing mitigation measures for public health impacts.  
- Disclosing and discussing public health impacts during stakeholder consultation  
- Air quality impacts on public health |
| **Oscar Kibazohi**          | BSc Mech. (UDSM), MSc (Mech,UDSM), PhD (Canada) | University of Dar es Salaam            | Incineration specialist                   | Review and analysis of incineration specifications, designs, refractory materials/liners, housing and predict performance efficiency |
APPENDIX 2: CORRESPONDENCES WITH NEMC

2.1 Approval of ToR

Permanent Secretary,
Ministry of Health, Community Development, Gender, Elderly and Children,
P.O. Box 9083,
Dar es Salaam. Attn: Dr. Mposi Ulisubisa

RE: TERMS OF REFERENCE (ToR) FOR CONDUCTING AN EIA FOR THE PROPOSED UPGRADE OF TEMEKE ISOLATION AND TREATMENT CENTER AT TEMEKE MUNICIPAL HOSPITAL, TEMEKE MUNICIPALITY IN DAR ES SALAAM

Please refer to the above subject,

We acknowledge receipt of your letter with Ref. No. HA. 270/608/01A/012 dated 5th April, 2016 submitted with the scoping report and Terms of Reference (ToR) for undertaking an EIA study on the above mentioned project.

We have reviewed the report and ToR and found that they are generally satisfactory. You are therefore required to undertake an EIA study prepare the EIA report and submit 15 copies to the National Environment management council for review and approval. Please note that the approved ToR should be appended in the EIS.

Upon submission of the EIA report, the Council will arrange for a technical review of the document by the cross-sectoral Technical advisory Committee (TAC). Prior to review, representatives of the TAC will visit the project area and verify the adequacy of the EIA report.

Upon submission of the EA report, you will be required to pay to the Council charges for the review of the EA report and approval processes amounting to Tshs. 4,036,500/= . The funds can be paid by cheque/cash or deposited in the NEMC Account with the following details:

Bank/Branch: NMB/Bank House.
A/C Name: National Environment Management Council
A/C No: 20101100084

All correspondence should be addressed to the Director General
Appendix 2.2 Screening Decision

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL (NEMC)
BARAZA LA TAIFA LA HIFADHI NA USIMAMIZI WA MAZINGIRA

Tel: Dir: +255 22 277 4852
Tel: +255 22 277 4889
Mob: +255 713 - 608930
Fax: +255 22 277 4901
E-mail: dg@nemc.or.tz
Website: www.nemc.or.tz
Regent Estate Plot No. 29/30,
P.O. Box 63154,
DAR ES SALAAM
TANZANIA

In reply please quote:
NEMC/HQ/EIA/11/0229/Vol. I/02
Date: 12/02/2015

Permanent Secretary,
Ministry of Health, Community Development, Gender, Elderly and Children,
P.O. Box 9083,
Dar es Salaam, Attn: Dr. Mpoki Ulisubisya

RE: SCREENING DECISION ON THE PROPOSED UPGRADING OF TEMEKE ISOLATION AND TREATMENT CENTER AT TEMEKE MUNICIPAL HOSPITAL, TEMEKE MUNICIPALITY IN DAR ES SALAAM

Kindly refer to the subject above.

We acknowledge receipt of your letter with Ref. No. GA. 270/431/03A/198 of 26th January, 2016 attached with three copies of a duly-filled Environmental Impact Assessment certificate application form and ten copies of the project brief for the above mentioned project. Kindly be informed that the project has been registered with Application Reference Number: 5527.

Following the review of the above documents, the Council has reached a decision that your project requires a full Environmental Impact Assessment (EIA) study. As a first step towards this process, you will be required to carry out a scoping exercise and submit a Scoping Report and the draft Terms of References (ToR) to the Council for review and approval before the beginning of an EIA study. Be reminded also that the Scoping report should conform to the EIA and Audit Regulations 2005 particularly Regulation 13 (3) and the Fourth Schedule made under Regulation 15 for the contents of the Scoping report and the essence of the scoping exercise respectively.

Please, do not hesitate to contact us in case you need additional information or clarification on this process through Telephone No. 0559 615136.

Looking forward to your cooperation on this matter,

Yours Sincerely,

Aziz A. Abbu
For: Director General.

Cc: Emeus Kajage, P.O. Box 31156, Dar-es-Salaam.

All correspondence should be addressed to the Director - General.
## APPENDIX 3: DETAILED COMMENTS FROM KEY STAKEHOLDERS

<table>
<thead>
<tr>
<th>Level</th>
<th>Consulted Institution/Group</th>
<th>Views and Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>Ministry of health, community development, gender, elderly and children</td>
<td>Epidemiology unit and the program health officer were consulted and confirm to be familiar with the proposed projects. The following views and concerns was raised:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ministry office support the projects as it will help the communities and national as a whole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If it follows all the procedures there will be no consequences on the environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The project will greatly support public health and reduce spread of diseases thereby improving health of everyone in the society</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Treatment center: Patients with these kind of disease (Ebola) will be isolated and placed under the special care hence it will reduce the spread of the disease.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other social impact of the project can occur during construction phase, employed people especially men are capable of in danger children and their wives due to the influence of their money they will earn from construction activities. You cannot stop someone in relationship or force someone to do what they want with whom as this is personal issue while others seek income.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ministry office also insist on fair salary because if laborers will be paid according to the contract, construction work will go fast but if there will be a delay of payments to be done out of the contract then the project will take long time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If construction procedures will be followed, education will be provided to public, and leaflets compatible to illnesses, the project will not bring adverse impact to the community.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Contractors are supposed to look on how to control air pollutants and other risk factors, which may likely caused by the proposed projects.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- In other hand they insist that conducting EIA will help to realize the impacts of the waste disposal system and</td>
</tr>
</tbody>
</table>
| Regional | RAS- Dar Es Salaam | The Regional Laboratory coordinator was consulted and confirms to be familiar with the proposed projects and he had the following opinions:

- The project will help patients to get service near and avoid traveling long distance
- Also the project will help to identify and detect epidemic diseases easily
- In other hand the project will build capacity of staffs and including training of staffs
- Region wise the project will help in detection of many epidemics diseases shortly
- Impact to the community, the project will not have negative impact to community, i.e. HIV diseases because the project will follow international standard
- The Laboratory coordinator also confirm that does not heard any land conflict at the proposed site
- In other hand he had the following opinion, including consideration of international standard of health and safety for the purpose of protecting workers and community surrounding the proposed site
- Personal protective equipments should be available and used by workers all working time during construction and operation phase
- Other opinion recommended by regional office was incentives to workers should be considered |

| Dar es Salaam Water and Sewerage Corporation (DAWASCO) | • Environmental Assessment team consulted Chief operational officer who notified that he is not familiar with the proposed project but he support the project.
- He confirms that the project will have advantage to the society because it will help to facilitate measurement and detection of diseases easily.
- Also the project will create employment to the society
- The project will have impacts to the health sector
- Apart from that Environmental impact which can be resulted due to project implementation is generation of liquid waste which require special treatment
- Other impact to the society which can be resulted is spread of diseases, so awareness training to the society is required and compensation |
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>The most important concerns which insisted by DAWASCO were:</td>
</tr>
<tr>
<td></td>
<td>- proper and sufficient water usage should be considered</td>
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<tr>
<td></td>
<td>- Other main concern of DAWASCO is the proposed site does not</td>
</tr>
<tr>
<td></td>
<td>have sewerage system</td>
</tr>
<tr>
<td></td>
<td>- The proposed project should ensure application for Water and</td>
</tr>
<tr>
<td></td>
<td>Sewage Services in DAWASCO is done and after connected water</td>
</tr>
<tr>
<td></td>
<td>bill should be done timely and adherence of all DAWASCO water</td>
</tr>
<tr>
<td></td>
<td>and sewage service regulations.</td>
</tr>
<tr>
<td>DAWASA</td>
<td>Performance compliance Manager was consulted and was not</td>
</tr>
<tr>
<td></td>
<td>aware with the proposed project but she support the project</td>
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<tr>
<td></td>
<td>because the project has come at the right time to reduce the</td>
</tr>
<tr>
<td></td>
<td>impact of infectious diseases by improving the existing reserve</td>
</tr>
<tr>
<td></td>
<td>of treatment at this hospital</td>
</tr>
<tr>
<td></td>
<td>- The project will be of great importance not only for the</td>
</tr>
<tr>
<td></td>
<td>community but the entire nation</td>
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<tr>
<td></td>
<td>- The presence of mortuary will reduce the risk of disease</td>
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<tr>
<td></td>
<td>transmission for service providers</td>
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<tr>
<td></td>
<td>- Fencing wall will reduce the risk to the surrounding</td>
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<tr>
<td></td>
<td>community get infections or impacts from the provision of</td>
</tr>
<tr>
<td></td>
<td>services in this facility and also for patients / attendants</td>
</tr>
<tr>
<td></td>
<td>of the hospital to comply with the existing distance of 500</td>
</tr>
<tr>
<td></td>
<td>meters</td>
</tr>
<tr>
<td></td>
<td>- Also the project will Improve health and increase economic</td>
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<tr>
<td></td>
<td>growth and provide deserving and timely treatment to patients</td>
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<tr>
<td></td>
<td>thereby reducing the number of deaths</td>
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<tr>
<td></td>
<td>- Environmental Impact which can be resulted during construction</td>
</tr>
<tr>
<td></td>
<td>are dust, Noise and traffic congestion</td>
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<tr>
<td></td>
<td>- During Operation environmental Impact which can be resulted</td>
</tr>
<tr>
<td></td>
<td>is management of solid waste while providing services, the</td>
</tr>
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<td></td>
<td>risk of contamination of ground water, wastewater handling</td>
</tr>
<tr>
<td></td>
<td>and Air pollution due to burning of solid waste.</td>
</tr>
<tr>
<td></td>
<td>- Also she confirms that during construction problem of dust</td>
</tr>
<tr>
<td></td>
<td>and chemical can be resulted because often subcontractors do</td>
</tr>
<tr>
<td></td>
<td>not observe the principle eligible to minimize or prevent the</td>
</tr>
<tr>
<td></td>
<td>problem.</td>
</tr>
<tr>
<td></td>
<td>- Also poor management of waste Preservation of this type will</td>
</tr>
<tr>
<td></td>
<td>affect the health and environment of the community</td>
</tr>
<tr>
<td></td>
<td>- Other Social impacts which can be resulted are spread of</td>
</tr>
<tr>
<td></td>
<td>diseases STD, VVU, unexpected pregnancy and increase of</td>
</tr>
<tr>
<td></td>
<td>street children.</td>
</tr>
</tbody>
</table>
In order to minimize impact DAWASA advise Contractor to considering strategic plan to prevent or reduce the impact expected also the presence of a plant (incinerator) for burning of solid waste generated

The presence of program management and verification (environmental and social management plan) to make sure you specify the characters in the project to ensure the project does not cause side effects also specifying the cost shall be consistent with the work of Atonement

The project is suitable, should be implemented at the scheduled time, OSHA regulations should be adhered to for the safety of staff at workplace, Education should be given to communities surrounding the project area, compensation to be paid on time if necessary to take communal areas nearby

It is very important to know the expected water demand also to know the size of the existing water supply pipeline adjacent to the project area in order to help the authorities put in plans to increase demand

DAWASA also insisted that summary of the project demonstrated the use of septic tank in the hospital, because treatment discussed involve infectious diseases detailed study should be conducted to know the safety of treating wastewater generated by special septic tank by reagents indicative of WHO and what method shall be used on final disposal of wastewater in order to avoid any side effects that may harm the environment and wastewater stabilization ponds. We request to get involved to the survey results of this study

In addition, we suggest to allocate funds as part of a project to put a wastewater treatment plant (onsite sanitation) in accordance with the results of the research to be undertaken

<table>
<thead>
<tr>
<th>Municipal Council</th>
<th>Temeke Municipal Council</th>
<th>The emergency coordinator, Municipal Medical Officer, and Municipal Environmental Health officer were consulted and he confirms to be familiar with the proposed projects and he had the following opinions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• The project is good, they should consider proper way of disposal the waste after treating a patient</td>
</tr>
</tbody>
</table>
• Effective in the treatment of infectious diseases, Investigations reduces medical costs and save money for other activities
• If well planned no problem but the problem if it will being built locally. Look at the key items before the project begins.
• Dust: this project must not be built near people’s homes thus why it’s called isolation is required not to be close to people’s homes. There should be enough space and however isolation of Temeke center was built only for emergency and did not have the Emergence of the disease emerged and sought alternatives.
• Other problems can be caused by health workers who would be added if they do not have enough skills
• No proper infrastructure hence could also be a problem too
• They will facilitate the medical treatment, care and Improve medical treatment to the highest point (its contribution is greater) Service expansion will speed up treatment.
• The project is not so great if you cannot bring harm comparison with other major projects.
• Considerations: intended to be built in time and there should be no fraud on the project then to meet the standards, Site Meetings and confirmation on site it is the right place before construction begins
• The project is very good and the health of the citizens will be improved further and they praised the government

<table>
<thead>
<tr>
<th>Government Agencies</th>
<th>TANESCO TEMEKE Principal Engineer</th>
<th>This project but he had the following views:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• The project will help to control epidemics and help to ensure that the disease does not spread at great location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EMPLOYMENT creativity: people will be hired for this project is beneficial to citizens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• There will be effects in place for neighbors from builders and the spread of HIV if there will be no community awareness to the project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cement and pollutants due to the activities will</td>
</tr>
</tbody>
</table>
disturb the neighbors
- The project is very important for the health sector as it will benefit and will save the budget
- TANESCO will benefit by installing electricity and increase customer base and so revenue collection
- Employees also will benefit through access to quality and reliable health services since project site is next door to TANESCO’s offices. For example during emergencies TANESCO staff would be rushed there for first aid treatments
- Awareness of the project and the transmission of diseases because there will be interaction and relationships are unavoidable, but there should be prevention of unprotected sex to prevent / unsafe
- Awareness for the community is very important, especially beneficial effects of the project to the community such as getting employment, and increasing business
- Many projects does not meet the target deadlines to end and be followed for this project is an important project for the people also people will benefit from this project and will save money in the health ministry, especially if the project will be completed within the stipulated time

<table>
<thead>
<tr>
<th>Local Government Authority</th>
<th>Temeke ward executive officer</th>
<th>Ward Executive Officer (WEO) was consulted and he confirms to be familiar with the proposed projects and he had the following opinions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>- It is a good project to have something like this, especially for epidemics diseases there must existence of project like this to handle the condition in control.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- If building Procedures won’t be considered there will be effects, but if building procedures will be considered the project will go well.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- It will serve people and will be a great help as even the countries affected will receive services and communities will gain from this project.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Interaction of people is unavoidable and cannot prevent the interaction Servants to exist it’s inevitable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Encouraging citizens from various infectious diseases and be aware with the project</td>
</tr>
</tbody>
</table>

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| OPINION: The government should continue with the project to help citizens |
| Small area they should seek another location if the project can continue or build apartment which will be able to accommodate more people because the area is small |

| TEMEKEK- STREET-Chairman |
| He heard this project to the council sessions: The following are comment |
| The project is good and it’ll be better if is improved |
| The chairman also insists that the community was not involved in the beginning of the project because it was an emergency project existed earlier. The local government also never be involved with this project from the beginning to the present project there was an emergency only |
| The project will also be of importance if well recognized by the public and local government to get involved and take feedback from residents |
| Current project 's exact location was the only a compound but significant is the inclusion of the local government to engage people to identify opportunities and communities also to recognize what is going on |
| Environmental Impact: there will be no effect because an area is set aside (is independent) and the impact of construction is very small |
| The project contribution is great especially is close to Temeke Hospital area so it benefits the residents of Temeke |
| Considerations: Contractor with ability and precise criteria according to the project itself. Also have the information in the surrounding area in order to identify and evaluate is coming |
| There should be meetings especially the development committee of the country and local ones and they will inform the public and to understand what will being done with their leaders |
| During development, should ensure they involve local government in order to get support from citizens |
| STREET REPRESENTATIVE TEMEKE | Street representative was consulted and he was not familiar with the proposed project but he had the following opinions:  
- He Disagrees with the project proposed project at Temeke  
- It is very close to the market area in which there are many people.  
- Look for an area that is less populated and far from Temeke because Temeke is densely populated and infectious diseases will spread faster |
|-------------------------------|---------------------------------------------------------------|
| RESIDENCE IN TEMEKE          | Residences of Temeke Street were consulted and they were not familiar with this project but they come up with the following opinions:  
- The project will be a great addition, especially the construction of the morgue after the people of epidemics and the city was buried after death will be stored in morgue  
- Mortuary of six people is very small, it will also caters to patients in Dar too epidemic diseases there has to be protection for the citizens especially passersby as they are infectious diseases focusing on infectious diseases (the market is very close). The project is fine, but passengers would not be hurt due to the project  
- The project is beneficial to the people of Temeke especially during construction because people will get employment  
- The location is very close to human settlements and epidemic diseases are infected through air that its transmission is urgency.  
- Enough immunity for people in order to protect them from the effects  
- The project will be more useful if it will be far from human settlements, but since it is more healthy should consider allocation of the project  
- Keep an environment that is safe and ventilated  
- Building should be known quite like epidemics, so that passers- by alert, knowing what's going on inside the building  
- We should know how to prevent ourselves from known diseases. How to prevent ourselves from |
unknown diseases.
- If there won’t take required precaution, there will be effect but if there will be careful during the use of project there won’t be impacts.
- They project will not bring any effect if the follow building regulations and precautions during construction
- If anyone will have emergency problem it will be a refuge for citizens
- Relations is inevitable and the possibility of spreading disease is enormous
- Things to consider : They should enforce restrictions to prevent others from being infected ( prevention )
- Performance of the project have on people's attention on to others from infection
- Government to make preparations for any lies ahead for residents especially as this project
- All measures of safety, infrastructure consideration, the debris from the project to be controlled from entering the community
- The project should seriously focusing on epidemics
- Project location should be expanded in order not cause harm or edification and elsewhere because there is a small are
- Mortuary must be built with specialist as pathologist who are experts on morgue
- The project is good because it is close to a hospital and if anyone is diagnosed with the problem it will be easily transported.
APPENDIX 4: LIST OF STAKEHOLDERS CONSULTED REGARDING UPGRADING OF TEMEKE’S EBOLA TREATMENT CENTER

<table>
<thead>
<tr>
<th>S/No</th>
<th>NAME</th>
<th>OCCUPATION 1</th>
<th>POSITION</th>
<th>OCCUPATION 2</th>
<th>CELL PHONE NUMBER</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr. S. L. M. Benjamin</td>
<td>Medical Officer</td>
<td>Medical</td>
<td>Medical Officer</td>
<td>07659 41 750</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dr. S. L. M. Benjamin</td>
<td>Medical Officer</td>
<td>Medical</td>
<td>Medical Officer</td>
<td>07659 41 750</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>William N. J. M.</td>
<td>Environmental Officer</td>
<td>Medical</td>
<td>Medical Officer</td>
<td>0715 41 37 44</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rekona S. L.</td>
<td>Environmental Officer</td>
<td>Medical</td>
<td>Medical Officer</td>
<td>0715 41 37 44</td>
<td></td>
</tr>
</tbody>
</table>
STAKEHOLDER CONSULTATION FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDIES FOR PROPOSED CONSTRUCTION OF LABORATORY BUILDINGS (I.E. THE NATIONAL PUBLIC HEALTH LABORATORY) AT MABIBO AND TEMEKE ISOLATION CENTER IN DAR ES SALAAM AND KIBONG’OTO INFECTIOUS DISEASE HOSPITAL IN KILIMANJARO.

ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSION, CONSULTATION AND INTERVIEW

LOCATION.......................................................... TEMEKE MUNICIPAL COUNCIL

DATE............................................................... 15/MARCH/2016

DAR ES SALAAM

<table>
<thead>
<tr>
<th>S/No</th>
<th>NAME</th>
<th>OCCUPATION</th>
<th>POSITION</th>
<th>CELL PHONE NUMBER</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr. Lawrence Chipete</td>
<td>Medical Director</td>
<td>MHL/Emergency Coordinator</td>
<td>0765961750</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dr. Sylvus Mwende</td>
<td>Municipal Medical</td>
<td>MHL</td>
<td>0716391160</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>William Muhungu</td>
<td>MHO</td>
<td>Municipal Health Officer</td>
<td>0754137740</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rehema Salehe</td>
<td>EHO</td>
<td>Environmental Health Officer</td>
<td>0754391669</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
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ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSION, CONSULTATION AND INTERVIEW

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ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSION, CONSULTATION AND INTERVIEW

LOCATION: TEMEKE - ATAA

DATE: 15/03/2016

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ATTENDANCE REGISTER FOR: MEETINGS, FOCUS GROUP DISCUSSION, CONSULTATION AND INTERVIEW

LOCATION: TEMEKE, KINANDO

DATE: 16/MARCH/2016

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APPENDIX 5: SCOPING NOTICE

The Ministry of Health Community Development Gender Elderly and Children
United Republic of Tanzania

Guardian

APPENDIX 5: SCOPING NOTICE